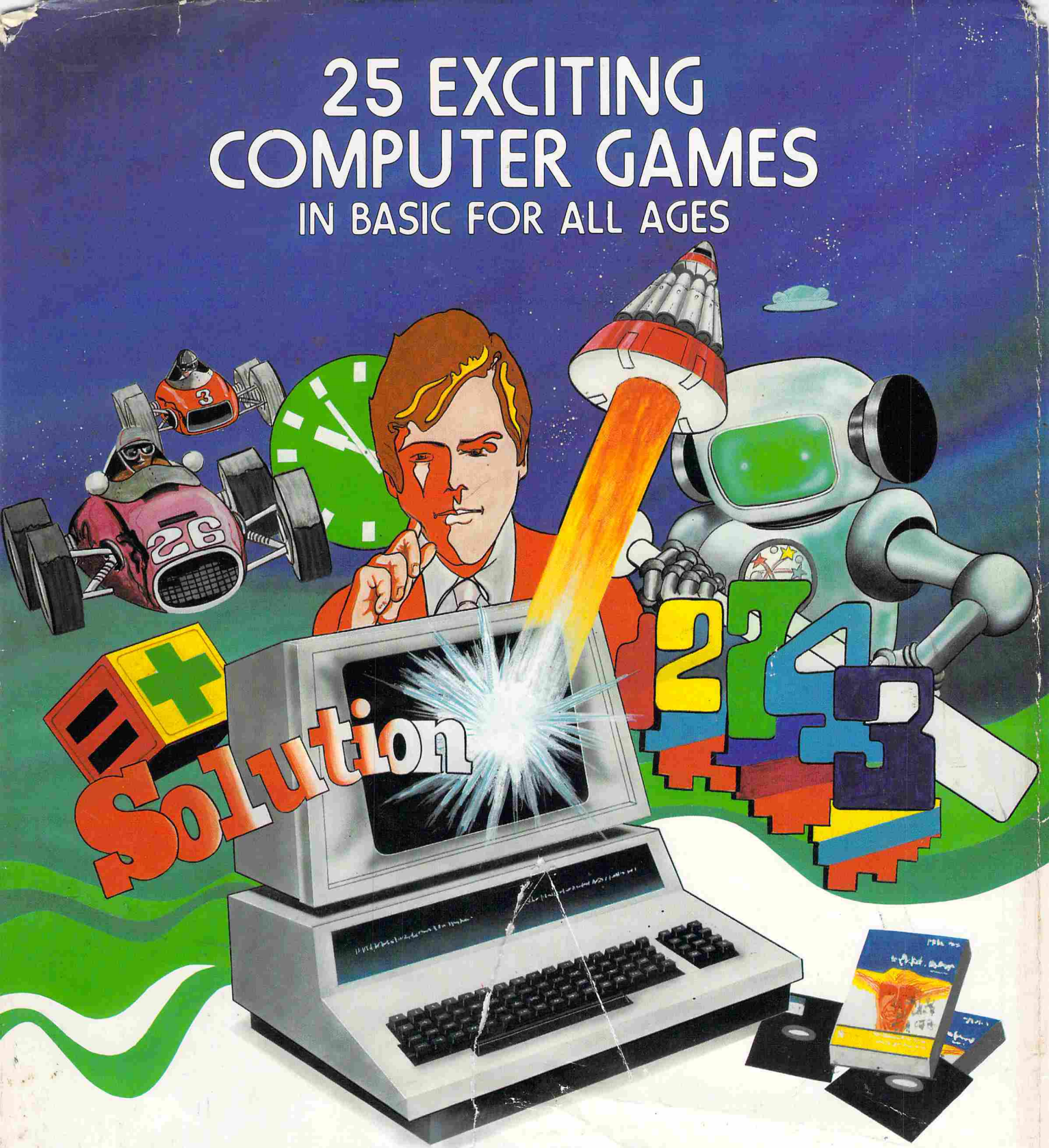
25 EXCITING COMPUTER GAMES

IN BASIC FOR ALL AGES



BY DAVID W. CHANCE

25 Exciting Computer Games in BASIC for All Ages

by David W. Chance

Entertaining and educational games and puzzles for the TRS-80™, Apple®, or PET®!

Improve your computing skills . . . turn your computer into a teaching machine that makes learning fun . . . explore the real capabilities of your TRS-80, Apple, or PET . . . discover exciting and challenging new games for every skill level, every age group from four to 60-plus! It's all here in this outstanding new collection of ready-to-run programs: puzzles, memory games, action games, educational games, and games designed purely for entertainment.

Here's a book that gives you *25 exciting programs* written in BASIC for the TRS-80. Easy-to-follow conversion instructions (including specific command changes and program line modifications) let you easily adapt the programs for use on an Apple or PET. Each program is thoroughly explained with complete program listings, flowcharts, sample runs, and notation of memory required (some programs take as little as 4K of memory). The author has even included suggestions for modifying programs to make them more challenging or for the use of additional graphics. Includes listings of REM statements to help new computerists gain a better understanding of BASIC and several "program shorts" that provide big computing excitment with only a little typing.

You'll find teaching and learning games that feature graphic rewards for

(continued on back flap)

25 EXCITING COMPUTER GAMES IN BASIC FOR ALL AGES

Other TAB books by the author:

No. 1275 *33 Challenging Computer Games for TRS-80™/Apple™/PET®*
No. 1276 *Computer Graphics—with 29 ready-to-run programs*
No. 1380 *30 Computer Programs for the Homeowner in BASIC*

25 EXCITING COMPUTER GAMES IN BASIC FOR ALL AGES

BY DAVID W. CHANCE

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This book is dedicated to my little girl, Annajean.

Introduction

Home computers are becoming more and more popular with each passing year. Owners of these systems are seeking more flexible hardware for use in their homes. They are also requesting software. Users who do not care to or do not have time to write their own programs are filling the files of software producers with more and more demanding requests for software they can use.

Because many producers concentrate on high-powered word processing and filing programs, home users are forced to rely on one category of computer programs, games. Users are therefore looking for more game programs that will run on their particular brand of home computer. They are also looking for programs that will do more than just entertain them.

This book is designed to help you and your children benefit more from your system. The programs will enable you to learn and relax using the "brain" (the computer) that is sitting in front of you.

THE SYSTEM . . . THE PROGRAMS

Each of the thousands of computer owners around the world owns a particular brand of computer system. The programs within this book are not designed to work on each and every different kind of system. All of the programs in this book were written using a Radio Shack® model TRS-80™ I, 16K level II computer system.

Methods of converting most of the programs for use on the PET® and

the Apple II™ computers can be found in Appendix A. You might also want to look through Appendix C which contains memory requirements for each program.

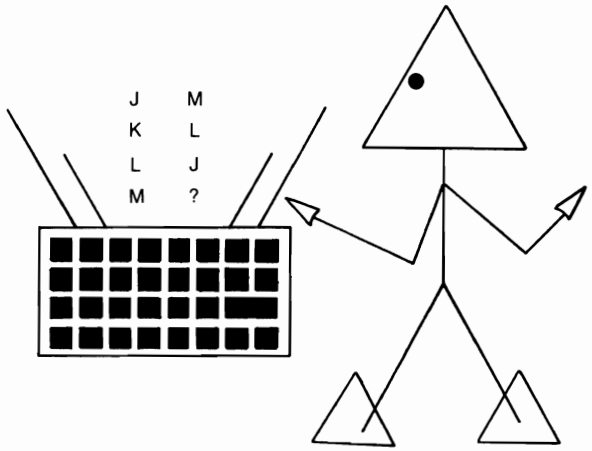
For each program there is a description, a flowchart, a sample run, and of course, the program listing itself. All programs have been "debugged" so that all you have to do is enter each of the lines and run the program. If you feel you have been "left hanging" by some of the sample runs, don't think that part of it was left out. Something must be left to your imagination.

Children between the ages of four and seven will benefit most from the teaching programs such as "All About Numbers" and "All About Numbers II." If you find they want to dive right into the action game programs, you can use a little psychology. Having them go through one or two of the teaching programs before they are allowed to play the action games is an effective strategy.

After you have enjoyed the game programs as they stand, you can read Appendix B, "Ways to Change the Programs," which opens new doors for most of the game programs.

Logical and Relaxing Games

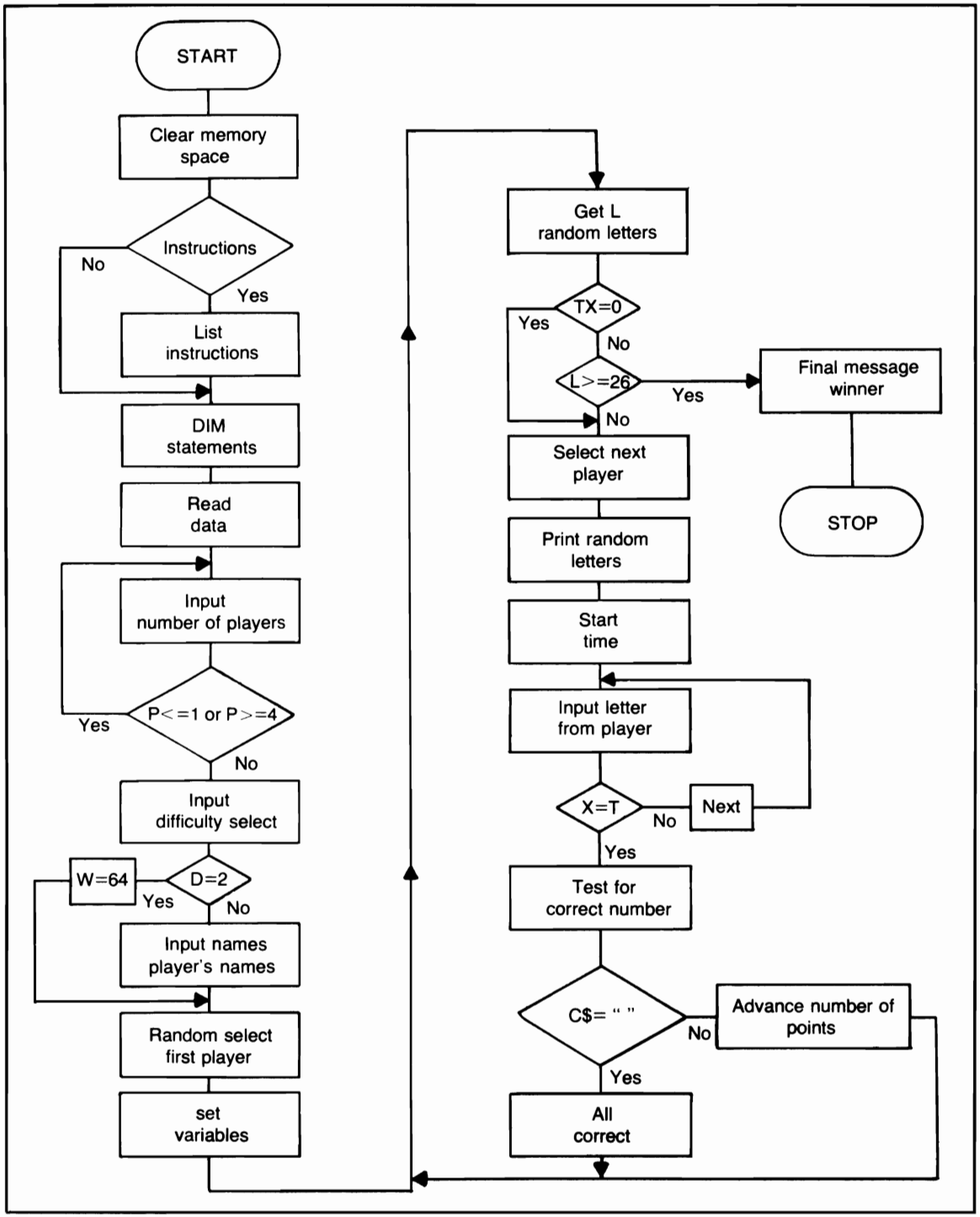
REVERSE ORDER OF OPERATION



Do you know the alphabet? All the letters? In this game different letters that are randomly selected will be displayed. You must type these letters in reverse order within a certain time limit. Up to three people can play this game. There are two difficulty levels. If you choose the first level, the letters will remain on the video screen. If you choose the second level, each letter will be displayed individually in large print (using CHR$(23)) and then will disappear.

Sample Run

```
  ⟨⟨REVERSE ORDER OF OPERATION⟩⟩

SEE THE INSTRUCTIONS? YES

THIS IS AN ACTION PACKED GAME THAT
WILL TEST YOUR MEMORY AND YOUR
ABILITY TO HANDLE FAST-PACED,
MIND-BENDING STRESS.
USING ONLY THE 26 LETTERS OF THE
ALPHABET THE GAME WILL TEST
YOUR MEMORY TO ITS FULLEST EXTENT.
```



Flowchart for *Reverse Order of Operation*

OF COURSE, THE GAME WILL START OUT
QUITE SIMPLY, YOU WILL RECEIVE 3
LETTERS OF THE ALPHABET.

PRESS ENTER?

GIVEN A CERTAIN TIME LIMIT, YOU
MUST INPUT THOSE LETTERS IN
REVERSE ORDER. THE NUMBER OF
LETTERS WILL INCREASE BY ONE
UNTIL ALL 26 LETTERS HAVE BEEN
PRINTED (IF YOU LAST THAT LONG).
IF AT ANYTIME YOU WANT TO QUIT,
PRESS THE 'SPACE BAR' INSTEAD OF
ENTERING A LETTER.

TO BEGIN, PRESS ENTER?

HOW MANY PLAYERS (UP TO 3)2

DIFFICULTY LEVEL
FOR ALL PLAYERS)
1) PRINT AND LEAVE LETTERS
2) PRINT AND BLANK LETTERS

SELECT? 1

PLAYER # 1'S FIRST NAME? DAVE
PLAYER # 2'S FIRST NAME? SANDRA

SANDRA IT'S YOUR PLAY...
PRESS ENTER WHEN READY?

Z S J

INPUT THE REVERSE ORDER
J Z S

YOU HAVE ENTERED 1 CORRECTLY.
SANDRA YOUR SCORE IS NOW: 10

DAVE IT'S YOUR PLAY...
PRESS ENTER WHEN READY?

```
Z S J

**INPUT THE REVERSE ORDER**
J S Z

YOU HAVE ENTERED ALL 3 IN
THEIR CORRECT ORDER.
DAVE YOUR SCORE IS NOW: 30

SANDRA IT'S YOUR PLAY...
PRESS ENTER WHEN READY?

Z S J Q

**INPUT THE REVERSE ORDER**
J S Z Q

YOU HAVE ENTERED ALL 4
INCORRECTLY, TRY HARDER !!
SANDRA YOUR SCORE IS NOW: 10

DAVE IT'S YOUR PLAY...
PRESS ENTER WHEN READY?

Z S J Q

**INPUT THE REVERSE ORDER**
J S Z Q

YOU HAVE ENTERED ALL 4
INCORRECTLY, TRY HARDER !!
DAVE YOUR SCORE IS NOW: 30

SANDRA IT'S YOUR PLAY...
PRESS ENTER WHEN READY?

Z S J Q M

**INPUT THE REVERSE ORDER**
**TIME**
M Q

YOU HAVE ENTERED 2 CORRECTLY.
SANDRA YOUR SCORE IS NOW: 30
```

DAVE IT'S YOUR PLAY...
PRESS ENTER WHEN READY?

///// STOP /////

Program Listing

```
10 REM PROGRAM TITLE:
20 REM REVERSE ORDER OF OPERATION
30 CLS:RANDOM:CLEAR 1000
40 PRINT TAB(15);
50 PRINT"<< REVERSE ORDER OF OPERATION >>"
60 PRINT
70 INPUT"SEE THE INSTRUCTIONS";A$
80 IF A$<>"YES" THEN 320
90 PRINT"THIS IS AN ACTION PACKED GAME THAT"
100 PRINT"WILL TEST YOUR MEMORY AND YOUR"
110 PRINT"ABILITY TO HANDLE FAST-PACED,"
120 PRINT"MIND-BENDING STRESS."
130 PRINT"USING ONLY THE 26 LETTERS OF THE"
140 PRINT"ALPHABET, THE GAME WILL TEST"
150 PRINT"YOUR MEMORY TO ITS FULLEST EXTENT."
160 PRINT"OF COURSE, THE GAME WILL START OUT"
170 PRINT"QUITE SIMPLY. YOU WILL RECEIVE 3"
180 PRINT"LETTERS OF THE ALPHABET."
190 PRINT:INPUT"PRESS ENTER";XX
200 CLS
210 PRINT"GIVEN A CERTAIN TIME LIMIT, YOU MUST"
220 PRINT"INPUT THOSE LETTERS IN REVERSE"
230 PRINT"ORDER. THE NUMBER OF"
240 PRINT"LETTERS WILL INCREASE BY ONE"
250 PRINT"UNTIL ALL 26 LETTERS HAVE BEEN"
260 PRINT"PRINTED (IF YOU LAST THAT LONG)."
270 PRINT"IF AT ANYTIME YOU WANT TO QUIT,"
280 PRINT"PRESS THE SPACE BAR INSTEAD OF"
290 PRINT"ENTERING THE LETTERS."
300 PRINT
310 INPUT"TO BEGIN, PRESS ENTER";XX
320 CLS
330 REM READ ALPHABET
340 DIM A$(26),A(26),L$(26),F$(26)
350 FOR I=1 TO 26
```

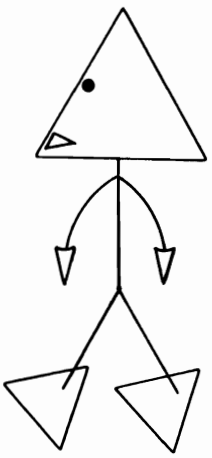
```
360 READ A$(I):A(I)=I
370 NEXT
380 REM PLAYERS
390 PRINT"HOW MANY PLAYERS (UP TO 3)";
400 INPUT P
410 IF P<=1 OR P>=4 THEN 390
415 PRINT
420 PRINT"DIFFICULTY LEVEL"
430 PRINT"(FOR ALL PLAYERS)"
440 PRINT"1) PRINT AND LEAVE LETTERS"
450 PRINT"2) PRINT AND BLANK LETTERS"
460 PRINT:INPUT"SELECT";D
465 IF D=2 W=64
470 INPUT"PLAYER # 1'S FIRST NAME";Q$
475 IF P=1 THEN 500
480 INPUT"PLAYER # 2'S FIRST NAME";Q1$
485 IF P=2 THEN 500
490 INPUT"PLAYER # 3'S FIRST NAME";Q2$
500 REM FIRST PLAYER
510 GOTO1100
520 REM NUMBER OF LETTERS TIME LIMIT
530 L=3:Y=1:T=150:U=L:GOSUB540:GOTO660
540 REM RANDOM CHOICE OF LETTERS
550 REM NOT ALREADY USED
560 I=RND(26)
570 IF A(I)=0 THEN 560
580 L$(Y)=A$(I)
590 REM DELETE LETTER
600 A(I)=0
610 IF Y<>L THEN 640
620 RETURN
640 Y=Y+1
650 GOTO560
660 REM GOTO CORRECT PLAYER
670 IF TX=0 THEN 710
680 IF RR=1 RR=2:Z$=Q1$:GOTO710
690 IF RR=2 RR=3:Z$=Q2$:GOTO705
700 IF RR=3 RR=1:Z$=Q$
705 IF RR=3 AND P=2 THEN RR=1:Z$=Q$
710 PRINT Z$;" IT'S YOUR PLAY..."
720 INPUT"PRESS ENTER WHEN READY";XX:CLS
725 IF D=2 THEN PRINT CHR$(23):GOTO730
726 PRINT:PRINT
730 FOR E=1TOL
```

```
740 IF D=2 THEN PRINT@W,L$(E):GOTO760
750 PRINT L$(E);" ";
760 FOR G=1TO100:NEXT G,E
770 IF D=2 PRINT@W," ";
780 PRINT
790 PRINT"** INPUT THE REVERSE ORDER **"
800 EE=L:Q=1:REM BEGIN TIME
810 FOR X=QTOT:C$=INKEY$:LL=LL+1
820 IF C$=" " THEN 870
830 IF C$="" THEN NEXT:GOTO1170
840 Q=LL
850 F$(EE)=C$
860 IF EE<>1 THEN EE=EE-1:GOTO810
870 FOR I=LTO1 STEP-1:PRINT F$(I);" ";
875 NEXT:PRINT
880 REM CHECK FOR CORRECT ENTRIES
890 FOR I=1TOL
900 IF F$(I)=L$(I) THEN 930
910 NEXT
920 GOTO950
930 T1=T1+10:XC=XC+1
940 GOTO910
950 REM ALL CORRECT
960 IF XC=L THEN 1020
970 REM NONE CORRECT
980 IF XC=0 THEN 1050
990 PRINT"YOU HAVE ENTERED";XC;"CORRECTLY."
1000 PRINT Z$;" YOUR SCORE IS NOW:";
1010 GOTO1200:REM TOTAL SCORE
1020 PRINT"YOU HAVE ENTERED ALL";L;"IN"
1030 PRINT"THEIR CORRECT ORDER."
1040 GOTO1000
1050 PRINT"YOU HAVE ENTERED ALL";L
1060 PRINT"INCORRECTLY, TRY HARDER !!"
1070 GOTO1000
1100 REM PLAYER SELECT (START)
1110 K=RND(P)
1120 IF K=1 THEN Z$=Q$:RR=1
1130 IF K=2 THEN Z$=Q1$:RR=2
1140 IF K=3 THEN Z$=Q2$:RR=3
1150 REM BEGIN WITH FIRST PLAYER
1160 GOTO520
1170 REM TIME !!
1180 PRINT
```

```
1190 PRINT"** TIME **":GOTO870
1200 REM FOR TOTAL SCORES
1210 IF RR=1 THEN 1240
1220 IF RR=2 THEN 1250
1230 IF RR=3 THEN 1260
1240 T2=T2+T1:PRINT T2:GOTO1270
1250 T3=T3+T1:PRINT T3:GOTO1270
1260 T4=T4+T1:PRINT T4
1270 G=0:LL=0:XC=0:T1=0:TX=1
1280 FOR I=1TOL:F$(I)="":NEXT
1285 REM FOR LETTER ADVANCE
1290 II=II+1
1300 IF ABS(II-P)=0 THEN 1330
1310 L=U
1320 PRINT:PRINT:GOTO660
1330 REM LETTER / TIME ADVANCE
1340 IF L>=26 THEN 1400
1350 L=L+1:Y=Y+1:GOSUB540
1360 T=T+20:II=0:U=L
1370 GOTO1320
1400 REM FINAL
1410 PRINT"THE GAME IS OVER..."
1420 REM WINNER
1430 IF T2>T3 AND T2>T4 THEN 1490
1440 IF T3>T2 AND T3>T4 THEN 1510
1450 IF T4>T2 AND T4>T3 THEN 1530
1460 PRINT"YOU HAVE EACH ENDED THE GAME"
1470 PRINT"WITH THE SAME SCORE."
1480 GOTO1550
1490 PRINT Q$;" WINS THE GAME, WITH A"
1500 PRINT"FINAL SCORE OF";T2:GOTO1550
1510 PRINT Q1$;" IS THE WINNER, YOUR"
1520 PRINT"FINAL SCORE IS";T3:GOTO1550
1530 PRINT Q2$;" HAS WON. FINAL SCORE"
1540 PRINT"A WHOPPING BIG";T4;"POINTS."
1550 PRINT
1560 PRINT"* END OF PROGRAM RUN *"
1570 END
1600 DATA A,B,C,D,E,F,G,H,I,J
1610 DATA K,L,M,N,O,P,Q,R,S,T
1620 DATA U,V,W,X,Y,Z
```

COLOR MATCH

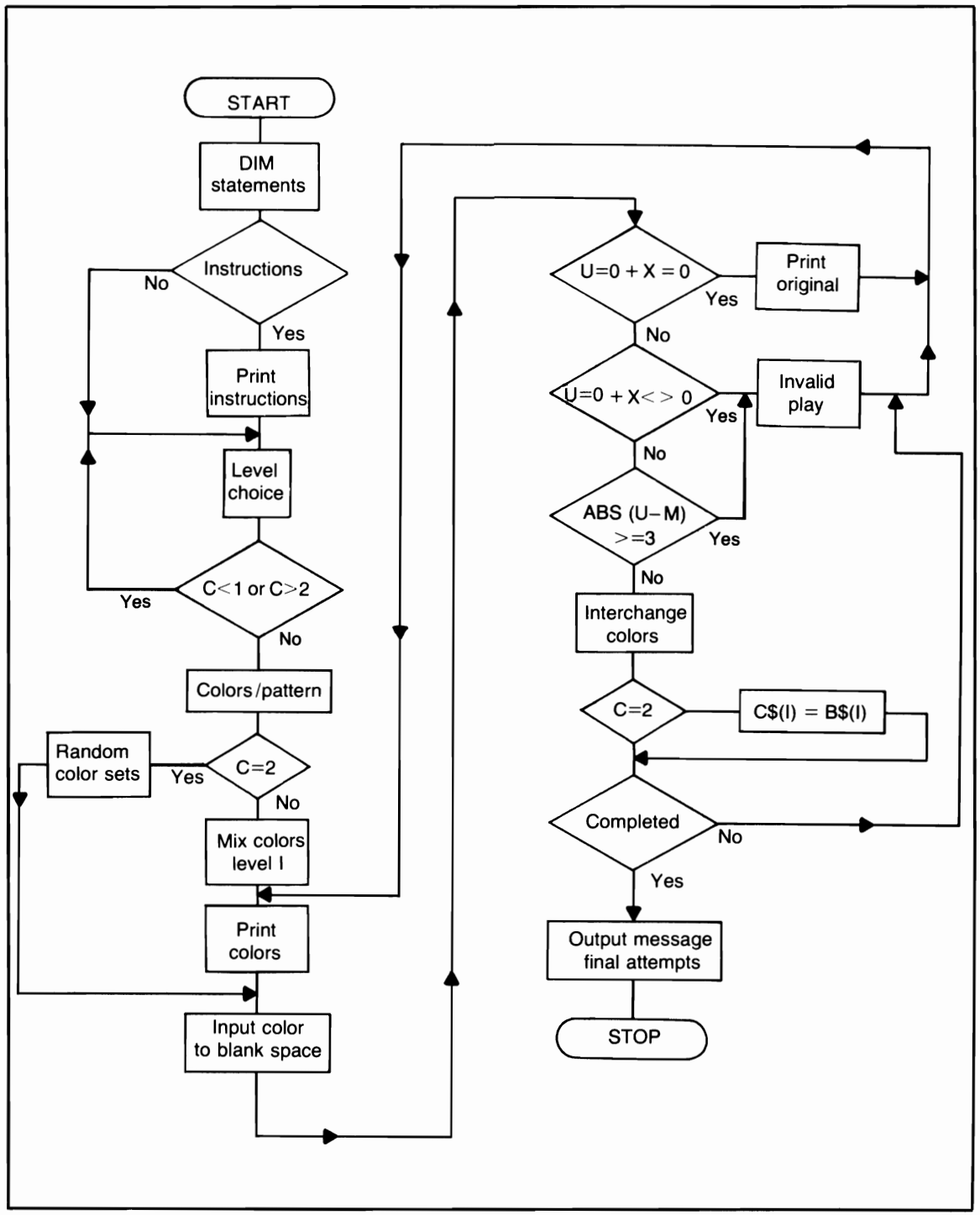
Blue	Green
Red	White
Blue	Red
Green	White
?	?



Select the difficulty level you want; then try to arrange the colors in their proper order in the fewest number of attempts. Before trying the second level, you might be wise to master the first, because on the second level, the computer will not let you see how the colors are supposed to be arranged.

Sample Run

```
///// COLOR MATCH /////

INSTRUCTIONS?YES

OBJECT: TO ARRANGE 15 COLORS
AND ONE BLANK SPACE TO MATCH
THE COMPUTER EXACTLY IN THE
FEWEST TRIES.
YOU WILL BE GIVEN A CHOICE
OF 2 LEVELS OF PLAY. THE
FIRST CHOICE WILL LET YOU SEE
HOW THE COLORS ARE SUPPOSED
TO BE ARRANGED. IF YOU CHOOSE
THE SECOND LEVEL YOU WILL
NOT BE ABLE TO SEE THE FINAL
COLOR ARRANGEMENT.

PRESS ENTER?
```



Flowchart for *Color Match*

IF YOU HAVE CHOSEN THE FIRST LEVEL, THE COMPUTER WILL REARRANGE THE 15 COLORS AND ½ BLANK SPACE RANDOMLY. IT WILL THEN ASK 'TO BLANK SPACE?' YOU CAN NOW START REARRANGING THE COLORS TO MATCH THE COMPUTER'S ORIGINAL ARRANGEMENT. ENTER THE NUMBER OF A SPACE WHICH CONTAINS THE COLOR THAT SHOULD GO IN THE SPACE THAT IS CURRENTLY BLANK. (IF YOU WISH TO SEE THE COMPUTER'S ARRANGEMENT, ENTER A '0' (ZERO).

PRESS ENTER

IF YOU HAVE CHOSEN THE SECOND LEVEL, YOU CANNOT SEE THE COMPUTER'S ARRANGEMENT, BUT THE COLORS WILL BE IN GROUPS OF 4, I.E., 1-4 MIGHT ALL BE BLUE AND SO ON. A COLOR CAN BE MOVED ONLY 2 SPACES IN EITHER DIRECTION, FOR EXAMPLE, 3 TO 4, OR 3 TO 5, OR 5 TO 4, OR 5 TO 3, AND SO ON.

ENTER NOW TO START?

LEVEL CHOICE (1 OR 2)? 1

1) BLUE	2) WHITE
3) GREEN	4) BLUE
5) BLUE	6) RED
7) WHITE	8)
9) WHITE	10) GREEN
11) BLUE	12) GREEN
13) RED	14) RED
15) WHITE	16) RED

TO BLANK SPACE? 6

```
 1) BLUE        2) WHITE
 3) GREEN       4) BLUE
 5) BLUE        6)
 7) WHITE       8) RED

 9) WHITE      10) GREEN
11) BLUE       12) GREEN
13) RED        14) RED
15) WHITE      16) RED

TO BLANK SPACE? 5

 1) BLUE        2) WHITE
 3) GREEN       4) BLUE
 5)             6) BLUE
 7) WHITE       8) RED

 9) WHITE      10) GREEN
11) BLUE       12) GREEN
13) RED        14) RED
15) WHITE      16) RED

TO BLANK SPACE? 3

 1) BLUE        2) WHITE
 3)             4) BLUE
 5) GREEN       6) BLUE
 7) WHITE       8) RED

 9) WHITE      10) GREEN
11) BLUE       12) GREEN
13) RED        14) RED
15) WHITE      16) RED

TO BLANK SPACE? 2

 1) BLUE        2)
 3) WHITE       4) BLUE
 5) GREEN       6) BLUE
 7) WHITE       8) RED

 9) WHITE      10) GREEN
11) BLUE       12) GREEN
13) RED        14) RED
```

```
15) WHITE      16) RED

TO BLANK SPACE? 0

 1) BLUE       2) BLUE
 3) BLUE       4) BLUE
 5) RED        6) RED
 7) RED        8) RED

 9) WHITE     10) WHITE
11) WHITE     12) WHITE
13) GREEN     14) GREEN
15) GREEN     16)

(original)

PRESS ENTER?

 1) BLUE       2)
 3) WHITE      4) BLUE
 5) GREEN      6) BLUE
 7) WHITE      8) RED

 9) WHITE     10) GREEN
11) BLUE      12) GREEN
13) RED       14) RED
15) WHITE     16) RED

TO BLANK SPACE? 11

ILLEGAL COMMAND...

 1) BLUE       2)
 3) WHITE      4) BLUE
 5) GREEN      6) BLUE
 7) WHITE      8) RED

 9) WHITE     10) GREEN
11) BLUE      12) GREEN
13) RED       14) RED
15) WHITE     16) RED

TO BLANK SPACE? 4
```

```
 1) BLUE        2) BLUE
 3) WHITE       4)
 5) GREEN       6) BLUE
 7) WHITE       8) RED

 9) WHITE      10) GREEN
11) BLUE       12) GREEN
13) RED        14) RED
15) WHITE      16) RED

TO BLANK SPACE?

///// STOP /////
```

You can see from this sample run that it might take you more attempts than you expected to rearrange the colors correctly. The original in the sample run is what the screen is supposed to look like when the run is finished.

Program Listing

```
10 REM PROGRAM TITLE: COLOR MATCH
20 CLS:RANDOM:DIM B$(16),A(16)
25 DIM T$(16),W$(16),C$(16)
30 PRINT"///// COLOR MATCH /////"
40 PRINT
50 INPUT"INSTRUCTIONS";Q$
60 IF Q$="NO" OR Q$="N" THEN 399
65 GOTO100
70 INPUT"LEVEL CHOICE (1 OR 2)";C
80 IF C<1 OR C>2 THEN 70
90 RETURN
100 PRINT"OBJECT: TO ARRANGE 15 COLORS"
110 PRINT"AND ONE BLANK SPACE TO MATCH"
120 PRINT"THE COMPUTER EXACTLY IN THE"
130 PRINT"FEWEST NUMBER OF TRIES."
140 PRINT"YOU WILL BE GIVEN A CHOICE"
150 PRINT"OF 2 LEVELS OF PLAY. THE"
160 PRINT"FIRST CHOICE WILL LET YOU SEE"
170 PRINT"HOW THE COLORS ARE SUPPOSED"
180 PRINT"TO BE ARRANGED. IF YOU CHOOSE"
190 PRINT"THE SECOND LEVEL YOU WILL"
200 PRINT"NOT BE ABLE TO SEE THE FINAL"
```

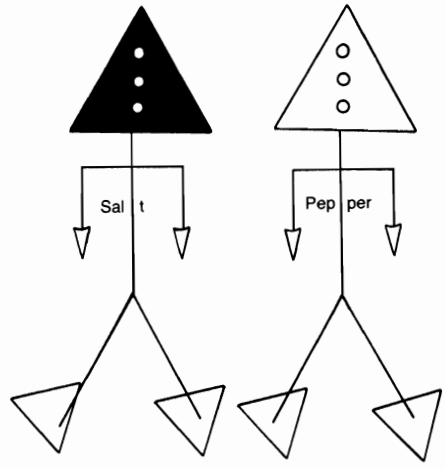
```
210 PRINT"COLOR ARRANGEMENT."
220 INPUT"PRESS ENTER";XX
230 CLS
240 PRINT"IF YOU HAVE CHOSEN THE FIRST"
250 PRINT"LEVEL, THE COMPUTER WILL"
260 PRINT"REARRANGE THE 15 COLORS AND 1"
270 PRINT"BLANK SPACE RANDOMLY. IT WILL"
280 PRINT"THEN ASK 'TO BLANK SPACE?' YOU"
290 PRINT"CAN NOW START REARRANGING THE"
300 PRINT"COLORS TO MATCH THE COMPUTER'S"
310 PRINT"ORIGINAL ARRANGEMENT. ENTER THE"
320 PRINT"NUMBER OF A SPACE WHICH CONTAINS"
330 PRINT"THE COLOR THAT SHOULD GO IN THE"
340 PRINT"SPACE THAT IS CURRENTLY BLANK."
350 PRINT"(IF YOU WISH TO SEE THE"
360 PRINT"COMPUTER'S ARRANGEMENT, ENTER A"
370 PRINT"'0' (ZERO))."
375 INPUT"ENTER";XX:CLS
380 PRINT"IF YOU HAVE CHOSEN THE SECOND"
382 PRINT"LEVEL, YOU CANNOT SEE THE"
384 PRINT"COMPUTER'S ARRANGEMENT, BUT"
386 PRINT"THE COLORS WILL BE IN GROUPS"
388 PRINT"OF 4, I.E., 1-4 MIGHT ALL"
390 PRINT"BE BLUE AND SO ON. A COLOR"
392 PRINT"CAN BE MOVED ONLY 2 SPACES IN"
394 PRINT"EITHER DIRECTION, FOR EXAMPLE,"
396 PRINT"3 TO 4, OR 3 TO 5, OR 5 TO 4,
397 PRINT"OR 5 TO 3, AND SO ON."
398 INPUT"ENTER NOW TO START";XX:CLS
399 GOSUB70:CLS
400 REM COLORS / ORIGINAL PATTERN
405 REM LEVEL ONE
410 FOR I=1TO4
420 B$(I)="BLUE":NEXT
430 FOR I=5TO8
440 B$(I)="RED":NEXT
450 FOR I=9TO12
460 B$(I)="WHITE":NEXT
470 FOR I=13TO15
480 B$(I)="GREEN":NEXT
490 B$(I)=" ":H=1:IF C=2 THEN 1300
500 FOR I=1TO16:A(I)=I:NEXT
510 REM RANDOM MIX OF COLORS
520 I=RND(16)
```

```
530 IF H=17 THEN 600
540 REM COLOR USED ?
550 IF A(I)=0 THEN 520
560 T$(H)=B$(I):IF T$(H)=" " THEN M=H
570 A(I)=0
580 H=H+1:GOTO520
600 REM PRINT COLORS
610 Q=1:W=2:P=5
620 PRINT TAB(0);Q;") ";T$(Q);
630 PRINT TAB(14);W;") ";T$(W)
640 IF Q<=P THEN 660
650 GOTO680
660 Q=Q+2:W=W+2
670 GOTO620
680 IF Z=1 THEN 720
690 REM FINISH PRINT OF COLORS
700 PRINT:P=14
710 Z=1:GOTO660
720 IF KK=1 KK=0:GOTO900
730 PRINT
740 INPUT"TO BLANK SPACE";U
750 IF U=0 AND X=0 THEN 1200
760 IF U=0 AND X<>0 THEN 1100
770 IF ABS(U-M)>=3 THEN 1100
780 REM ADVANCE COUNTER
790 A=A+1
800 PRINT
810 REM INTERCHANGE COLORS
820 T$(M)=T$(U)
830 T$(U)=" "
840 M=U:IF M=0 M=1
850 Z=0
860 GOTO1000
900 REM CONTINUE
910 PRINT
920 INPUT"PRESS ENTER";X$
930 FOR I=1TO16
940 T$(I)=W$(I)
950 NEXT
960 Z=0:PRINT
970 GOTO600
1000 REM CHECK FOR COMPLETION
1010 FOR I=1TO16
1020 IF C=2 THEN 1050
```

```
1030 IF T$(I)<>B$(I) THEN 600
1040 NEXT:GOTO1500
1050 IF T$(I)<>C$(I) THEN 600
1060 NEXT
1070 GOTO1500
1100 REM ILLEGAL COMMAND
1110 PRINT
1120 PRINT"ILLEGAL COMMAND..."
1130 FOR E=1TO1200:NEXT:PRINT
1140 Z=0
1150 GOTO600
1200 REM PRINT ORIGINAL
1210 FOR I=1TO16
1220 W$(I)=T$(I)
1230 T$(I)=B$(I)
1240 NEXT
1250 KK=1:Z=0
1260 PRINT
1270 GOTO600
1300 REM LEVEL TWO
1310 FOR I=1TO4
1320 A(I)=I:NEXT:K=1
1330 I=RND(4)
1340 IF K=5 THEN 1380
1350 IF A(I)=0 THEN 1330
1360 R(K)=A(I):A(I)=0
1370 K=K+1:GOTO1330
1380 REM RANDOM COLORS (SETS)
1390 X=1:J=1
1400 IF X=5 THEN 1490
1410 ON R(X) GOTO 1420,1430,1440,1450
1420 A=1:B=4:GOTO1460
1430 A=5:B=8:GOTO1460
1440 A=9:B=12:GOTO1460
1450 A=13:B=16
1460 FOR I=ATOB
1470 C$(J)=B$(I):J=J+1:NEXT
1480 X=X+1:GOTO1400
1490 GOTO500
1500 REM COMPLETED
1510 PRINT
1520 PRINT"YOU HAVE COMPLETED THE"
1530 PRINT"COLOR ARRANGMENT !!!"
1540 REM PRINT STATEMENT FOR ATTEMPTS
```

```
1550 IF A>=1 AND A<=25 THEN 1610
1560 IF A>=25 AND A<=50 THEN 1650
1570 IF A>=50 AND A<=75 THEN 1690
1580 PRINT"YOUR ATTEMPTS (";A;") HAVE"
1590 PRINT"LEFT SOMETHING TO BE DESIRED..."
1600 GOTO1730
1610 PRINT"GREAT JOB !"
1620 PRINT"YOU DID IT IN ONLY";A;"MOVES-"
1630 PRINT"AN EXCELLENT SCORE !!!!!"
1640 GOTO1730
1650 PRINT"NOT BAD,";A;"MOVES TO"
1660 PRINT"ARRANGE ALL 16 COLORS, KEEP"
1670 PRINT"UP THE GOOD WORK...."
1680 GOTO1730
1690 PRINT A;"MOVES. A LITTLE HIGH"
1700 PRINT"FOR ONLY 16 COLORS. MAYBE"
1710 PRINT"WE SHOULD HAVE STARTED YOU"
1720 PRINT"OUT WITH 4 COLORS ?????"
1730 PRINT
1740 PRINT"COMPLETION OF GAME PROGRAM."
1750 END
```

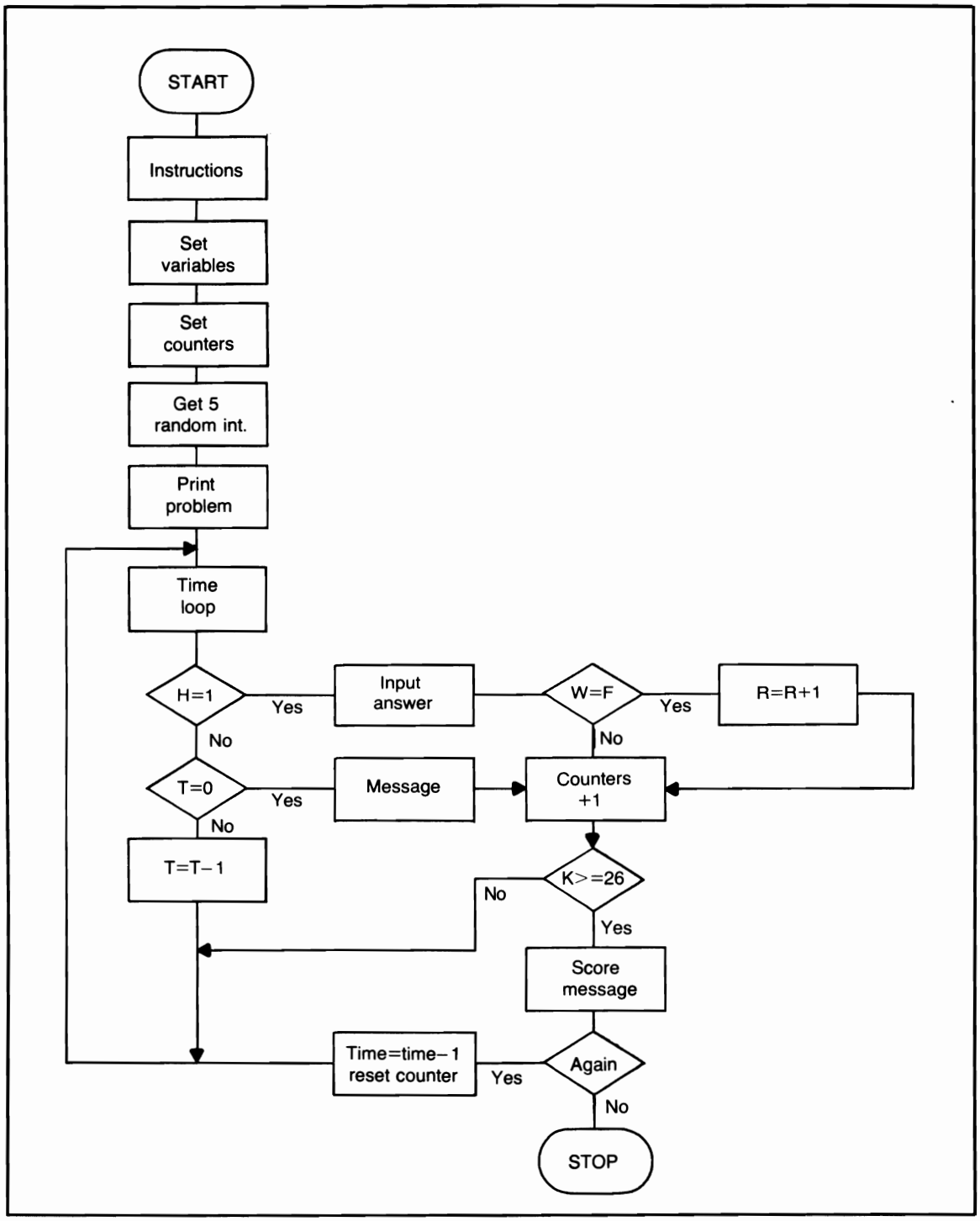
SALT AND PEPPER



To complete this game, you will have to be on your toes at all times. You must solve long math problems within a time limit of 10 seconds (on your first RUN through). To stop the clock and input your answer, simply hold down the enter key. Now you are probably thinking, "Big deal, I can hold down the enter key as soon as the problem is printed and take as long as I want to answer." That angle was taken into consideration when the program was designed. You see, as soon as the clock stops, a little block moves across the problem and wipes it out. Thus, you will have to know the answer before you hold down the enter key! Have fun!!

Sample Run

```
SALT AND PEPPER

INSTRUCTIONS:
TO PLAY THIS FAST-PACED GAME,
YOU WILL HAVE TO SOLVE COMPLEX
MATH PROBLEMS QUICKLY. THESE
WON'T BE SIMPLE PROBLEMS, SO YOU
SHOULD BRUSH UP BEFORE STARTING.
YOU'LL BE GIVEN A TIME
LIMIT FOR EACH PROBLEM.
THE PROGRAM WILL TERMINATE EITHER
WHEN YOU GO INSANE OR WHEN THE
COUNTER REACHES 25 (WHICHEVER
OCCURS FIRST!!).
```



Flowchart for *Salt and Pepper*

ENTER?

INSTRUCTIONS (CONT.)
YOU WILL BE GIVEN THE PROBLEMS
ONE AT A TIME. TO THE RIGHT OF
EACH PROBLEM WILL BE THE TIME
YOU HAVE REMAINING TO INPUT
AN ANSWER. WHEN YOU HAVE THE
ANSWER (AND YOU HAVE SOME
TIME LEFT), HOLD THE ENTER
KEY DOWN TO STOP THE CLOCK
AND INPUT YOUR COMPLETED ANSWER.

PRESS ENTER NOW AND THE COMPUTER
WILL SELECT YOUR FIRST PROBLEM?

PROBLEM # 1 4 * 4 / 1 – 17 + 6 = 5

PROBLEM # 2 2 * 3 / 1 – 16 + 9 =–1

PROBLEM # 3 6 * 1 / 1 – 14 + 6 =–2

PROBLEM # 4 2 * 3 / 1 – 10 + 9 = 5

PROBLEM # 5 9 * 4 / 2 – 15 + 3 = 6

PROBLEM # 6 9 * 4 / 1 – 8 + 6 = 34

PROBLEM # 7 3 * 3 / 1 – 1 + 2 = 10

PROBLEM # 8 1 * 5 / 1 – 1 + 4 = 8

PROBLEM # 9 5 * 2 / 2 – 10 + 8 = 3

PROBLEM # 10 7 * 4 / 1 – 11 + 2 = 19

PROBLEM # 11 9 * 4 / 1 – 13 + 10 = 33

PROBLEM # 12 9 * 4 / 2 – 6 + 8 = 20

PROBLEM # 13 6 * 1 / 1 – 2 + 1 = 5

PROBLEM # 14 7 * 5 / 2 – 2 + 3 = 18.5

PROBLEM # 15 5 * 1 / 1 – 13 + 3 =–5

PROBLEM # 16 7 * 3 / 2 – 16 + 3 =–2.5

PROBLEM # 17 7 * 2 / 1 – 6 + 8 = 16

PROBLEM # 18 4 * 2 / 2 – 4 + 5 = 5

PROBLEM # 19 1 * 5 / 1 – 3 + 2 = 4

PROBLEM # 20 4 * 1 / 2 – 2 + 3 = 3

PROBLEM # 21 3 * 1 / 2 – 12 + 9 =–1.5

PROBLEM # 22 3 * 4 / 2 – 6 + 8 = 8

PROBLEM # 23 9 * 4 / 1 – 13 + 7 = 30

PROBLEM # 24 7 1 / 1 – 12 + 5 = 0

PROBLEM # 25 9 * 2 / 1 – 9 + 4 = 13

A FANTASTIC SCORE. 25 OUT OF
25 CORRECT, REALLY GOOD !!!

ANOTHER ROUND OF.....
SALT AND PEPPER? NO
FOR THAT ANSWER YOU'LL GET
PEPPER IN THE EAR !!
END OF PROGRAM RUN.

Program Listing

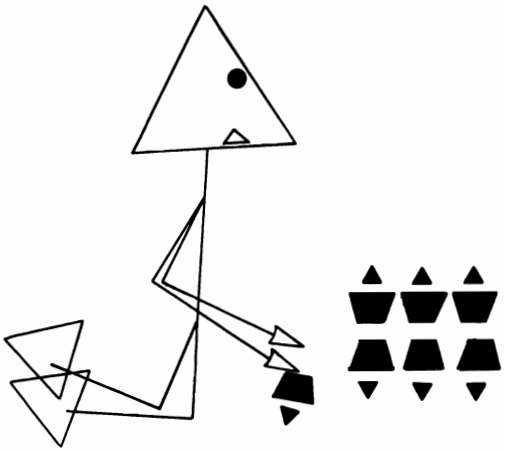
```
10 REM PROGRAM TITLE: SALT AND PEPPER
20 CLS
30 RANDOM
40 REM PROGRAM WILL ONLY
50 REM USE RANDOM INTEGERS
60 PRINT TAB(15);"SALT AND PEPPER"
70 PRINT
80 PRINT"INSTRUCTIONS:"
90 PRINT"TO PLAY THIS FAST-PACED GAME,"
100 PRINT"YOU WILL HAVE TO SOLVE COMPLEX"
110 PRINT"MATH PROBLEMS QUICKLY. THESE"
120 PRINT"WON'T BE SIMPLE PROBLEMS, SO YOU"
```

```
130 PRINT"SHOULD BRUSH UP BEFORE STARTING."
140 PRINT"YOU SEE YOU'LL BE GIVEN A TIME"
150 PRINT"LIMIT FOR EACH PROBLEM."
160 PRINT"THE PROGRAM WILL TERMINATE EITHER"
170 PRINT"WHEN YOU GO INSANE OR WHEN THE"
180 PRINT"COUNTER REACHES 25 (WHICHEVER"
190 PRINT"OCCURS FIRST!!)."
200 PRINT
210 INPUT"*** ENTER ***";X
220 CLS
230 PRINT"INSTRUCTIONS (CONT.)"
240 PRINT"YOU WILL BE GIVEN THE PROBLEMS"
250 PRINT"ONE AT A TIME. TO THE RIGHT OF"
260 PRINT"EACH PROBLEM WILL BE THE TIME"
270 PRINT"YOU HAVE REMAINING TO INPUT"
280 PRINT"AN ANSWER. WHEN YOU HAVE THE"
290 PRINT"ANSWER (AND YOU HAVE SOME"
300 PRINT"TIME LEFT), HOLD DOWN THE ENTER"
310 PRINT"KEY DOWN TO STOP THE CLOCK"
320 PRINT"AND INPUT YOUR COMPLETED ANSWER."
330 PRINT
340 PRINT"PRESS ENTER NOW AND THE COMPUTER"
350 PRINT"WILL SELECT YOUR FIRST PROBLEM";
360 INPUT X
370 CLS:K=1:Q=40:TT=10:P=10
380 A=RND(10)
390 B=RND(5)
400 C=RND(2)
410 D=RND(17)
420 E=RND(P)
430 REM VARIABLE P WILL INCREASE
440 REM WITH EACH RECYCLE (PLAY AGAIN)
450 PRINT TAB(0);"PROBLEM #";
460 PRINT TAB(10);K;
470 PRINT TAB(14),;
480 PRINT A;"*";B;"/";C;"-";D;"+";E;"=";
490 REM TIME LOOP
500 T=TT
510 PRINT@Q,T;"SECONDS LEFT."
520 H=PEEK(15340)
530 IF H=1 THEN 700
540 FOR I=1TO500:NEXT
550 IF T=0 THEN 580
560 T=T-1
```

```
570 GOTO510
580 PRINT@Q,"  !!!! TIME !!!! "
590 REM ADVANCE COUNTERS
595 K=K+1:Q=Q+64:V=V+3
600 IF K>=26 THEN 900
610 IF Q>=1000 THEN 630
620 GOTO380
630 CLS:Q=45:V=0:GOTO380
700 REM INPUT ANSWER
705 GOTO800
710 PRINT@Q,;
720 INPUT"   YOUR ANSWER";W
730 IF W<>F THEN 590
740 R=R+1:GOTO595
800 REM CLEAR PROBLEM
810 REM GET ANSWER
820 FOR J=31TO77
830 SET(J,V):RESET(J,V):NEXT
840 F=A*B/C-D+E
850 GOTO710
900 REM 25 COMPLETED
910 IF R>=20 THEN 980
920 IF R>=15 AND R<=20 THEN 1010
930 IF R>=10 AND R<=15 THEN 1060
940 PRINT"A DASH OF SALT AND PEPPER"
950 PRINT"IS YOUR REWARD. OUT OF"
960 PRINT"A POSSIBLE";K;"YOU ANSWERED"
970 PRINT"ONLY";R;"CORRECTLY.":GOTO1100
980 PRINT"A FANTASTIC SCORE.";R;"OUT OF"
990 PRINT"25 CORRECT, REALLY GOOD !!!"
1000 GOTO1100
1010 PRINT"FOR THE PROBLEMS YOU RECEIVED"
1020 PRINT"YOUR SCORE CAN'T BE KNOCKED."
1030 PRINT"GETTING";R;"PROBLEMS"
1040 PRINT"RIGHT IS REALLY GOOD..."
1050 GOTO1100
1060 PRINT"JUST A DASH OF SALT IS ALL"
1070 PRINT"YOU'RE GONNA GET THIS TIME..."
1080 PRINT"YOU ANSWERED";R;"OUT OF 25"
1090 PRINT"PROBLEMS CORRECTLY."
1100 PRINT
1110 PRINT"ANOTHER ROUND OF....."
1115 PRINT"SALT AND PEPPER";
1120 INPUT Y$
```

```
1130 IF Y$="Y" OR Y$="YES" THEN 1170
1140 PRINT"FOR THAT ANSWER YOU'LL GET"
1150 PRINT"PEPPER IN THE EAR !!"
1160 END
1170 TT=TT-1
1175 IF TT<=0 THEN TT=10
1180 T=TT
1190 PRINT"IN THE NEXT SET, YOU WILL"
1200 PRINT"HAVE";T;"SECONDS TO ANSWER"
1210 PRINT"EACH PROBLEM...GOOD LUCK !!!"
1220 INPUT"PRESS ENTER TO BEGIN";X
1230 CLS
1240 R=0:V=0:K=1
1250 Q=40:P=P+5
1260 GOTO380
1300 REM THIS PROGRAM CAN BE 'SPICED
1310 REM UP' BY USING CHANGING VARIABLES
1320 REM FOR EACH OF THE RANDOM FUNCTIONS
1330 REM LOCATED AT LINES 380 - 410
1340 REM AS WAS DONE WITH VARIABLE 'E'
1350 REM AT LINE 420
1360 REM THESE VARIABLES CAN BE 'STEPPED'
1370 REM WITH EACH RUN THROUGH THE
1380 REM GAME
1390 REM AS WITH VARIABLE 'P' AT LINE 1250
```

PATTERNS



After you select "left/right" or "top/bottom" patterns, you can let your imagination take over! If you select "top/bottom," whatever you draw on the top half of the video, will be duplicated on the bottom half. If you select "left/right," whatever you draw on the left will be duplicated on the right. You can create some very interesting patterns.

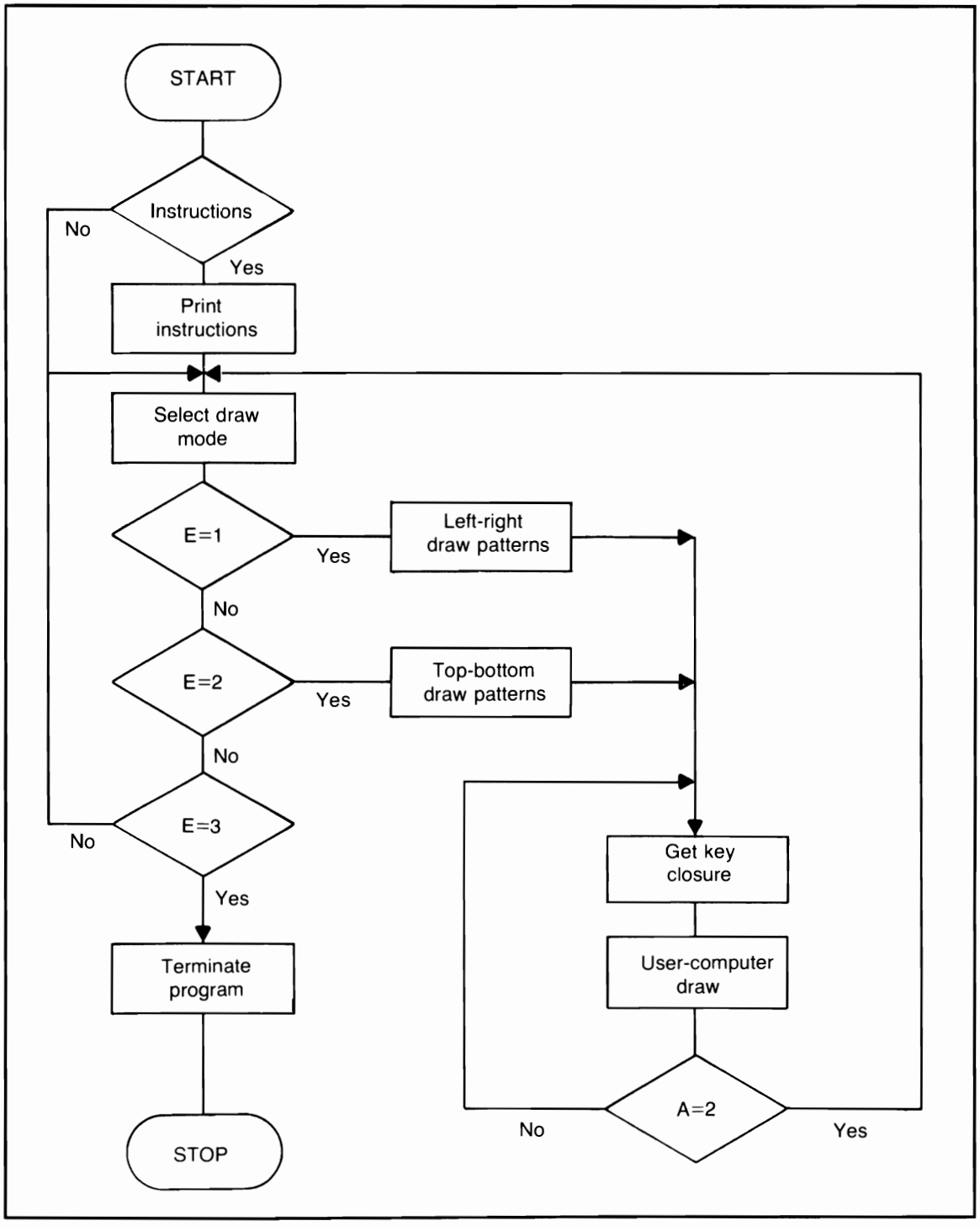
Sample Run

READ INSTRUCTIONS (Y/N)? Y

THIS PROGRAM WILL LET YOU DRAW
WHATEVER YOU WISH...BUT, WITH
A NEW TWIST, WHATEVER YOU DRAW
THE COMPUTER WILL DUPLICATE IN
A MIRROR IMAGE, HENCE, YOU CAN
CREATE MANY THOUSANDS OF DIFFERENT
PATTERNS.

PRESS ⟨ENTER⟩?

YOU WILL HAVE THE CHOICE OF
DRAWING LEFT/RIGHT OR TOP/BOTTOM.
IF YOU SELECT LEFT/RIGHT, THE
COMPUTER WILL DUPLICATE YOUR WORK
ON THE RIGHT SIDE. IF YOU SELECT
TOP/BOTTOM, THE COMPUTER WILL



Flowchart for *Patterns*

```
DUPLICATE YOUR WORK ON THE BOTTOM
OF THE VIDEO SCREEN.
YOU WILL USE THE FOUR ARROW
KEYS TO DRAW ON THE SCREEN.
TO MOVE AROUND THE SCREEN WITHOUT
DRAWING, PRESS ANY ARROW KEY PLUS
THE SHIFT KEY (THESE KEYS CAN ALSO BE
USED TO ERASE PREVIOUSLY DRAWN LINES).

PRESS ⟨ENTER⟩?

TO CLEAR VIDEO (ERASE EVERYTHING DRAWN)
PRESS THE ⟨CLEAR⟩ KEY ONLY.
YOU CAN THEN BEGIN AGAIN, DRAWING EITHER
LEFT/RIGHT OR TOP/BOTTOM PATTERNS.

NOTE: YOU CAN DRAW DIAGONAL
LINES (UP/RIGHT, UP/LEFT, DOWN/
RIGHT, DOWN/LEFT), BY USING
TWO ARROW KEYS TOGETHER.
EXAMPLE: TO DRAW UP/RIGHT, PRESS THE
UP ARROW KEY + THE RIGHT ARROW KEY TOGETHER.

PRESS ENTER TO BEGIN YOUR 'PATTERNS'?

SELECT AREA:
 1) LEFT/RIGHT PATTERNS
 2) TOP/BOTTOM PATTERNS
 3) TERMINATE
 ? 3

* PROGRAM TERMINATED *
```

Program Listing

```
10 REM PROGRAM TITLE: PATTERNS
15 IF B=0 CLS:GOTO2000
20 CLS:GOTO800
30 CLS:X=0:Y=0:J=127:K=0
40 SET(X,Y):SET(J,K)
50 IF MX=1 GOSUB700:GOTO30
100 A=PEEK(15340)
105 IF A=2 THEN 600
```

```
108 IF P=1 THEN 900
110 IF A=8 THEN 240
120 IF A=9 THEN KY=1:GOTO240
130 IF A=16 THEN 260
140 IF A=17 THEN KY=1:GOTO260
150 IF A=32 THEN 280
160 IF A=33 THEN JX=1:GOTO280
170 IF A=40 THEN 300
180 IF A=48 THEN 310
190 IF A=64 THEN 320
200 IF A=65 THEN JX=1:GOTO320
210 IF A=72 THEN 340
220 IF A=80 THEN 350
230 GOTO530
240 Y=Y-1:K=K-1:GOTO530
260 Y=Y+1:K=K+1:GOTO540
280 X=X-1:J=J+1:GOTO550
300 Y=Y-1:K=K-1:GOTO315
310 Y=Y+1:K=K+1
315 X=X-1:J=J+1:GOTO360
320 X=X+1:J=J-1:GOTO560
340 Y=Y-1:K=K-1:GOTO355
350 Y=Y+1:K=K+1
355 X=X+1:J=J-1
360 IF X<=0 X=0
370 IF X>=62 X=62
380 IF Y<=0 Y=0
390 IF Y>=47 Y=47
400 IF J<=65 J=65
410 IF J>=127 J=127
420 IF K<=0 K=0
430 IF K>=47 K=47
450 SET(X,Y):SET(J,K)
460 IF KY=1 THEN 500
470 IF JX=1 THEN 500
480 GOTO100
500 RESET(X,Y):RESET(J,K)
510 KY=0:JX=0
520 GOTO100
530 IF KY=1 RESET(X,Y+1):RESET(J,K+1)
535 GOTO360
540 IF KY=1 RESET(X,Y-1):RESET(J,K-1)
545 GOTO535
```

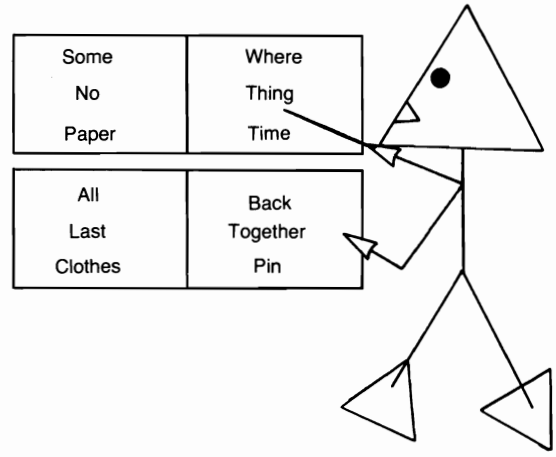
```
550 IF JX=1 RESET(X+1,Y):RESET(J-1,K)
555 GOTO535
560 IF JX=1 RESET(X-1,Y):RESET(J+1,Y)
565 GOTO535
600 CLS
610 PRINT:PRINT:PRINT
620 PRINT TAB(15);"*** SCREEN CLEARED ***"
630 FOR I=1TO1500:NEXT
635 IF MX=2 RETURN
640 MX=1:GOTO20
700 MX=0
710 PRINT:PRINT:PRINT
720 PRINT TAB(18);"***** READY *****"
730 FOR I=1TO1000:NEXT
740 CLS
750 RETURN
800 PRINT
810 PRINT"SELECT AREA:"
820 PRINT"1) LEFT/RIGHT PATTERNS"
830 PRINT"2) TOP/BOTTOM PATTERNS"
835 PRINT"3) TERMINATE"
840 PRINT
850 INPUT E
860 ON E GOTO 30,880,2600
870 GOTO810
880 CLS:GOSUB700
885 X=0:Y=0:J=0:K=47
890 SET(X,Y):SET(J,K)
895 A=PEEK(15340)
900 IF A=2 THEN 600
910 IF A=8 THEN 1020
915 IF A=9 THEN KY=1:GOTO1020
920 IF A=16 THEN 1030
930 IF A=17 THEN KY=1:GOTO1030
940 IF A=32 THEN 1040
945 IF A=33 THEN JX=1:GOTO1040
950 IF A=40 THEN 1060
960 IF A=48 THEN 1070
970 IF A=64 THEN 1050
975 IF A=65 THEN JX=1:GOTO1050
980 IF A=72 THEN 1080
990 IF A=80 THEN 1090
1010 GOTO895
1020 Y=Y-1:K=K+1:GOTO1215
```

```
1030 Y=Y+1:K=K-1:GOTO1220
1040 X=X-1:J=J-1:GOTO1240
1050 X=X+1:J=J+1:GOTO1260
1060 Y=Y-1:K=K+1:GOTO1075
1070 Y=Y+1:K=K-1
1075 X=X-1:J=J-1:GOTO1100
1080 Y=Y-1:K=K+1:GOTO1095
1090 Y=Y+1:K=K-1
1095 X=X+1:J=J+1
1100 IF X<=0 X=0
1110 IF X>=127 X=127
1120 IF Y<=0 Y=0
1130 IF Y>=22 Y=22
1140 IF J<=0 J=0
1150 IF J>=127 J=127
1160 IF K<=25 K=25
1170 IF K>=47 K=47
1180 SET(X,Y):SET(J,K)
1210 GOTO895
1215 IF KY=1 RESET(X,Y+1):RESET(J,K-1)
1216 GOTO1230
1220 IF KY=1 RESET(X,Y-1):RESET(J,K+1)
1230 KY=0:GOTO1100
1240 IF JX=1 RESET(X+1,Y):RESET(J+1,K)
1250 JX=0:GOTO1100
1260 IF JX=1 RESET(X-1,Y):RESET(J-1,K)
1270 GOTO1250
2000 REM INSTRUCTIONS
2010 PRINT
2020 INPUT"READ INSTRUCTIONS (Y/N)";A$
2030 IF A$="N" THEN 2050
2040 GOTO2100
2050 B=1
2060 GOTO20
2100 PRINT
2110 PRINT"THIS PROGRAM WILL LET YOU DRAW"
2120 PRINT"WHATEVER YOU WISH...BUT, WITH"
2130 PRINT"A NEW TWIST: WHATEVER YOU DRAW"
2140 PRINT"THE COMPUTER WILL DUPLICATE IN"
2150 PRINT"A MIRROR IMAGE, HENCE, YOU CAN"
2160 PRINT"CREATE MANY THOUSANDS OF DIFFERENT"
2170 PRINT"PATTERNS."
2180 PRINT
2190 INPUT"PRESS <ENTER>";A$
```

```
2200 CLS:PRINT
2210 PRINT"YOU WILL HAVE THE CHOICE OF"
2220 PRINT"DRAWING LEFT/RIGHT OR TOP/BOTTOM."
2230 PRINT"IF YOU SELECT LEFT/RIGHT, THE"
2240 PRINT"COMPUTER WILL DUPLICATE YOUR WORK"
2250 PRINT"ON THE RIGHT SIDE. IF YOU SELECT"
2260 PRINT"TOP/BOTTOM, THE COMPUTER WILL"
2270 PRINT"DUPLICATE YOUR WORK ON THE BOTTOM"
2280 PRINT"OF THE VIDEO SCREEN."
2300 PRINT"YOU WILL USE THE FOUR ARROW"
2310 PRINT"KEYS TO DRAW ON THE SCREEN."
2320 PRINT"TO MOVE AROUND THE SCREEN WITHOUT"
2330 PRINT"DRAWING, PRESS ANY ARROW KEY PLUS"
2340 PRINT"THE SHIFT KEY (THESE KEYS CAN ALSO BE"
2350 PRINT"USED TO ERASE PREVIOUSLY DRAWN
     LINES)."
2360 PRINT
2370 INPUT"PRESS <ENTER>";A$
2380 CLS
2390 PRINT
2400 PRINT"TO CLEAR VIDEO (ERASE EVERYTHING
     DRAWN)"
2410 PRINT"PRESS THE <CLEAR> KEY ONLY."
2420 PRINT"YOU CAN THEN BEGIN AGAIN, DRAWING
     EITHER"
2430 PRINT"LEFT/RIGHT OR TOP/BOTTOM PATTERNS."
2440 PRINT
2450 PRINT"NOTE: YOU CAN DRAW DIAGONAL"
2460 PRINT"LINES (UP/RIGHT, UP/LEFT, DOWN/"
2470 PRINT"RIGHT, DOWN/LEFT), BY USING"
2475 PRINT"TWO ARROW KEYS TOGETHER."
2480 PRINT"EXAMPLE: TO DRAW UP/RIGHT, PRESS THE"
2490 PRINT"UP ARROW KEY + THE RIGHT ARROW KEY
     TOGETHER."
2500 PRINT
2510 INPUT"PRESS ENTER TO BEGIN YOUR PATTERNS";
     A$
2520 CLS
2530 B=1
2540 GOTO20
2600 REM TERMINATE
2610 MX=2
2620 GOSUB600
2630 PRINT
2640 PRINT TAB(15);"* PROGRAM TERMINATED *"
2650 END
```

Teaching and Learning Games

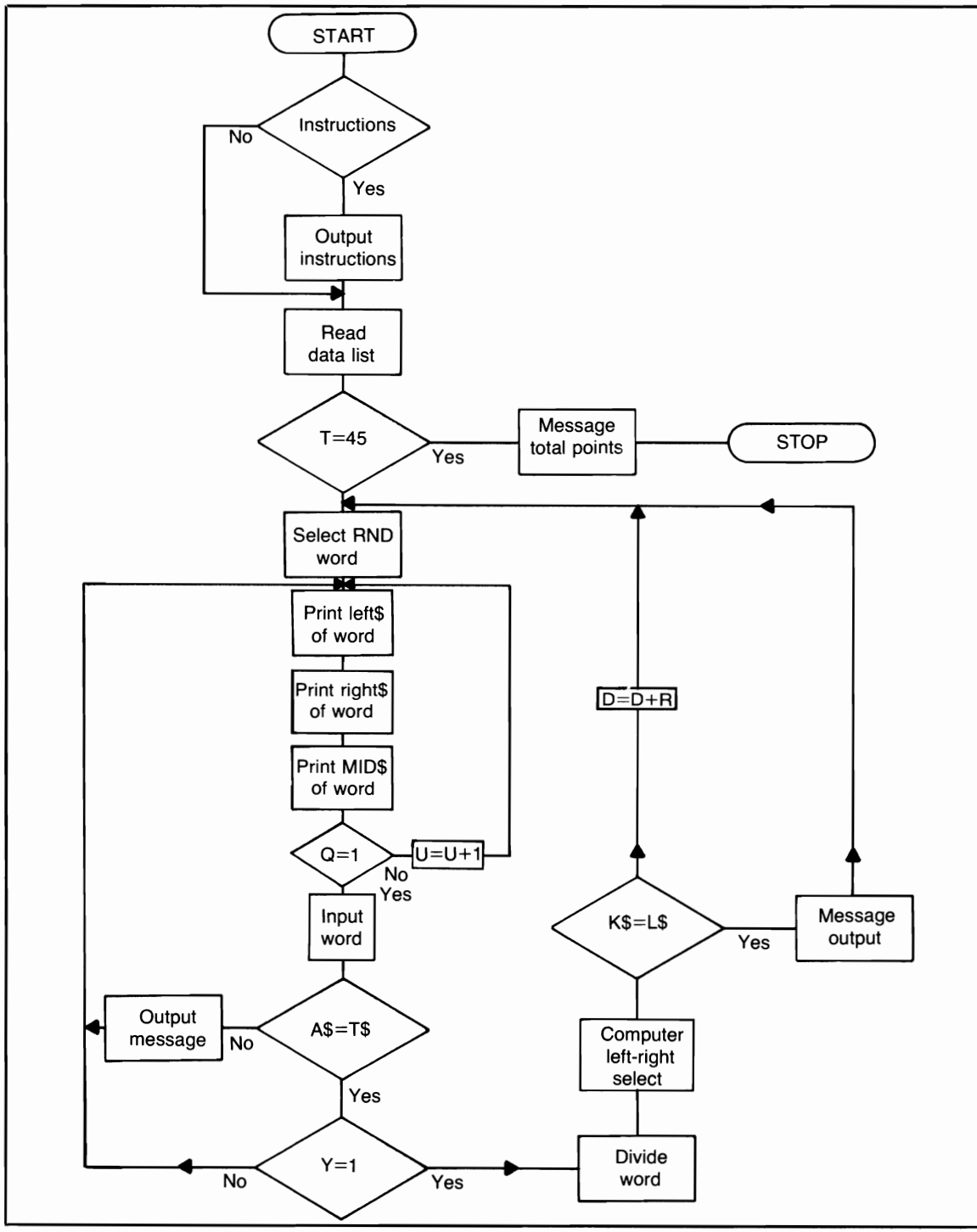
WORDS TOGETHER



Words will be printed one at a time, but they will look like more than one word. And, incredible as it might sound, when you finish guessing the words in this game, your total score must be at or below zero to win. In fact, that is the only way you can win!

Sample Run

```
        /// WORDS TOGETHER ///

INSTRUCTIONS? YES

PUTTING WORDS TOGETHER OR
TAKING THEM APART MIGHT SOUND
QUITE SIMPLE TO MOST, BUT THIS
GAME HAS A SPECIAL TWIST. AFTER
YOU GET STARTED (NO MATTER WHAT
AGE GROUP YOU'RE IN) YOU MIGHT
ENCOUNTER A FEW DIFFICULTIES.

PRESS ENTER?
```



Flowchart for *Words Together*

WORDS WILL BE SELECTED RANDOMLY
FROM A SET OF 45. THIS PROGRAM
WILL USE THE LEFT$, RIGHT$, AND
MID$ FUNCTIONS TO PRINT PIECES OF
EACH WORD. EACH "PIECE" CAN
CONTAIN ANY NUMBER OF LETTERS
IN THE ORDER IN WHICH THEY APPEAR
IN THE WORD. THE COMPUTER WILL SHOW
YOU MORE AND MORE PIECES. WHEN
YOU ARE SURE WHAT THE COMPLETE
WORD IS, PRESS THE ENTER KEY.

PRESS ENTER?

TO FAMILIARIZE YOU WITH THE
SCORING SYSTEM, HERE IS A SAMPLE:
THE COMPUTER STARTS PRINTING
PIECES OF A WORD. AFTER YOU
RECOGNIZE THE WORD YOU PRESS ENTER.
THE COMPUTER WILL TELL YOU HOW
MANY TIMES IT PRINTED DIFFERENT
PIECES OF THAT WORD, SAY 20.

PRESS ENTER?

YOU THEN INPUT THE WORD; SAY
THE WORD IS 'HELPLESS'. IF YOU
ARE CORRECT AND YOUR SCORE IS
ALREADY AT OR BELOW 0 (ZERO), IT
WILL REMAIN THERE. IF, ON THE
OTHER HAND, YOU ARE INCORRECT, YOUR
SCORE WILL BE INCREASED BY 20
POINTS (THE NUMBER OF PIECES PRINTED)
PLUS 8 MORE POINTS FOR THE NUMBER OF
LETTERS IN THAT WORD.

PRESS ENTER?

THE OBJECT WILL BE TO ENTER
ALL 45 WORDS AND HAVE YOUR
FINAL SCORE AT 0 (ZERO). THIS
IS THE ONLY WAY YOU CAN WIN !!
PRESS ENTER NOW TO RECEIVE
YOUR FIRST WORD?

```
AW AOULAW AW OOULAAW OUL

11 RANDOM PIECES OF THE
WORD HAVE BEEN PRINTED.

ENTER THE COMPLETE WORD? OUTLAW

VERY WELL DONE...
THAT WORD CONTAINS 6 LETTERS
SO 6 POINTS HAVE BEEN
DEDUCTED FROM YOUR SCORE.
YOUR SCORE IS NOW: 0 POINTS.

THE COMPLETE WORD WAS:
  OUTLAW
NOTE THAT THE WORD CONTAINS
2 PARTS, THE COMPUTER WILL
SELECT EITHER THE LEFT SIDE
OR THE RIGHT SIDE OF THE
WORD (RANDOM SELECTION).
INPUT YOUR CHOICE (LEFT OR
RIGHT) AND THE COMPUTER WILL
'TRY' TO MATCH? LEFT
```

*** The computer will tell you if its choice happened to match yours and will deduct points if it didn't! ***

```
PRESS ENTER WHEN YOU ARE
READY TO CONTINUE?

ORT TTRT OROOR

8 RANDOM PIECES OF THE
WORD HAVE BEEN PRINTED.

ENTER THE COMPLETE WORD? PASSPORT
SORRY...YOU MISSED THAT
WORD. IT CONTAINED 6 LETTERS.
ADDING THE 6 POINTS TO YOUR
SCORE GIVES YOU A TOTAL OF 14 POINTS...
IDENTIFY THE NEXT WORD TO GET
YOUR SCORE BACK DOWN TO 0!

PRESS ENTER WHEN YOU ARE
READY TO CONTINUE?
```

DBYE ODBYE ODBBYOYE DYODDODBYBYE
DBODBDBYYE BDBO

23 RANDOM PIECES OF THE
WORD HAVE BEEN PRINTED.

ENTER THE COMPLETE WORD? GOODBYE

VERY WELL DONE...
THAT WORD CONTAINS 7 LETTERS,
SO 7 POINTS HAVE BEEN
DEDUCTED FROM YOUR SCORE.
YOUR SCORE IS NOW: 0 POINTS.

PRESS ENTER WHEN YOU ARE
READY TO CONTINUE?

IFRIFTWOOD WOIFWOD OIFD

10 RANDOM PIECES OF THE
WORD HAVE BEEN PRINTED.

ENTER THE COMPLETE WORD? DRIFTWOOD

VERY WELL DONE...
THAT WORD CONTAINS 9 LETTERS.
SO 9 POINTS HAVE BEEN
DEDUCTED FROM YOUR SCORE.
YOUR SCORE IS NOW: 0 POINTS.

PRESS ENTER WHEN YOU ARE
READY TO CONTINUE?

TOCTIRCTOR

4 RANDOM PIECES OF THE
WORD HAVE BEEN PRINTED.

ENTER THE COMPLETE WORD? TRACTOR

SORRY...YOU HAVE MISSED THAT
WORD. IT CONTAINED 8
LETTERS. ADDING THE 8 POINTS TO YOUR
SCORE GIVES YOU A TOTAL OF 12 POINTS...

IDENTIFY THE NEXT WORD TO GET
YOUR SCORE BACK DOWN TO 0!

PRESS ENTER WHEN YOU ARE
READY TO CONTINUE?

///// STOP /////

Program Listing

```
10 REM PROGRAM TITLE: WORDS TOGETHER
20 CLEAR 1000:CLS:RANDOM:E=150
30 PRINT TAB(20);"/// WORDS TOGETHER ///"
40 PRINT:DIM W$(46),X(46)
50 INPUT"INSTRUCTIONS";X$
60 IF X$="NO" OR X$="N" THEN CLS:GOTO500
70 PRINT
80 PRINT"PUTTING WORDS TOGETHER OR"
90 PRINT"TAKING THEM APART MIGHT SOUND"
100 PRINT"QUITE SIMPLE TO MOST, BUT THIS"
110 PRINT"PROGRAM HAS A SPECIAL TWIST. AFTER"
130 PRINT"YOU GET STARTED (NO MATTER WHAT"
140 PRINT"AGE GROUP YOU'RE IN) YOU MIGHT"
150 PRINT"ENCOUNTER A FEW DIFFICULTIES."
160 PRINT
170 INPUT"PRESS ENTER";XX
180 CLS
190 PRINT"WORDS WILL BE SELECTED RANDOMLY"
200 PRINT"FROM A SET OF 45. THIS PROGRAM"
210 PRINT"WILL USE THE LEFT$, RIGHT$, AND"
220 PRINT"MID$ FUNCTIONS TO PRINT PIECES OF"
222 PRINT"EACH WORD. EACH PIECE CAN"
224 PRINT"CONTAIN ANY NUMBER OF LETTERS IN"
226 PRINT"THE ORDER IN WHICH THEY APPEAR"
228 PRINT"IN THE WORD. THE COMPUTER WILL SHOW"
230 PRINT"YOU MORE AND MORE PIECES. WHEN"
235 PRINT"YOU ARE SURE WHAT THE COMPLETE"
250 PRINT"WORD IS, PRESS THE ENTER KEY."
255 INPUT"PRESS ENTER";XX:CLS
270 PRINT"TO FAMILIARIZE YOU WITH THE"
280 PRINT"SCORING SYSTEM, HERE IS A SAMPLE:"
290 PRINT"THE COMPUTER STARTS PRINTING"
300 PRINT"PIECES OF A WORD, AFTER YOU"
```

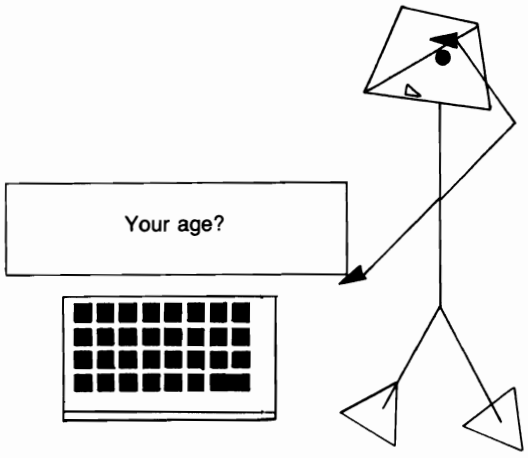
```
310 PRINT"RECOGNIZE THE WORD, YOU PRESS ENTER."
320 PRINT"THE COMPUTER WILL TELL YOU HOW"
330 PRINT"MANY TIMES IT PRINTED DIFFERENT"
340 PRINT"PIECES OF THAT WORD, SAY 20."
350 INPUT"PRESS ENTER";XX:CLS
360 PRINT"YOU THEN INPUT THE WORD; SAY"
370 PRINT"THE WORD IS 'HELPLESS'; IF YOU"
380 PRINT"ARE CORRECT AND YOUR SCORE IS"
390 PRINT"ALREADY AT OR BELOW 0 (ZERO), IT"
400 PRINT"WILL REMAIN THERE. IF, ON THE"
410 PRINT"OTHER HAND, YOU ARE INCORRECT, YOUR"
420 PRINT"SCORE WILL BE INCREASED BY 20"
430 PRINT"POINTS (THE NUMBER OF PIECES PRINTED)"
440 PRINT"PLUS 8 MORE POINTS FOR THE NUMBER OF"
450 PRINT"LETTERS IN THAT WORD."
460 INPUT"PRESS ENTER";XX:CLS
470 PRINT"THE OBJECT IS TO ENTER"
480 PRINT"ALL 45 WORDS AND HAVE YOUR"
490 PRINT"FINAL SCORE AT 0 (ZERO). THIS"
492 PRINT"IS THE ONLY WAY YOU CAN WIN !!"
495 PRINT"PRESS ENTER NOW TO RECEIVE"
498 INPUT"YOUR FIRST WORD";XX:CLS
500 FOR I=1TO45
510 X(I)=I:READ W$(I):NEXT
520 I=RND(45)
530 IF T=45 THEN 1400
540 IF X(I)=0 THEN 520
550 X(I)=0
560 REM WORD
570 T=T+1:T$=W$(I):R=LEN(T$)
575 IF GH=1 THEN 590
580 REM RANDOM LETTERS
585 Q=PEEK(15340):IF Q=1 THEN 680
590 L=(RND(R)-RND(4))
595 IF L<=0 OR L=R THEN 585
600 PRINT@E,RIGHT$(T$,L);" ";
605 IF L>=4 AND L<=6 THEN 640
610 L1=(RND(R)-L):PRINT@E+2,RIGHT$(T$,L+1);
615 IF L1<=0 THEN 585
620 PRINT@E+4,LEFT$(T$,L1);
630 U=U+1:GOTO660
640 PRINT@E+6,MID$(T$,L,L);" ";
650 U=U+1:GOTO585
660 IF Q=1 THEN 680
```

```
670 GOTO585
680 PRINT
690 PRINT U;"RANDOM PIECES OF THE"
700 PRINT"WORD HAVE BEEN PRINTED."
710 PRINT
720 PRINT"ENTER THE COMPLETE WORD";
730 INPUT A$
740 IF A$<>T$ THEN 900
750 PRINT"VERY WELL DONE..."
770 PRINT"THAT WORD CONTAINS";R;"LETTERS."
780 PRINT"SO";R;"POINTS HAVE BEEN"
790 PRINT"DEDUCTED FROM YOUR SCORE"
795 PRINT"YOUR SCORE IS NOW:";
800 D=D-U-R:IF D<=0 THEN D=0
810 PRINT D;"POINTS."
820 PRINT:GOTO1000
830 PRINT"PRESS ENTER WHEN YOU ARE"
840 INPUT"READY TO CONTINUE";XX
850 CLS:U=0:Q=0
860 PRINT@150,;
870 GH=1:GOTO520
900 REM MISSED WORD
910 PRINT"SORRY...YOU MISSED THAT"
920 PRINT"WORD. IT CONTAINED";R;"LETTERS."
930 PRINT"ADDING THE";R;"POINTS TO YOUR"
940 PRINT"SCORE GIVES YOU A TOTAL OF";
950 D=D+U+R
955 PRINT D;"POINTS..."
960 IF D>=1 THEN 980
970 GOTO820
980 PRINT"IDENTIFY THE NEXT WORD TO GET"
985 PRINT"YOUR SCORE BACK DOWN TO ZERO."
990 GOTO970
1000 REM DIVIDE WORD
1010 Y=RND(2)
1020 IF Y=1 THEN PRINT:GOTO830
1030 PRINT"THE COMPLETE WORD WAS:"
1040 PRINT TAB(5);T$
1050 PRINT"NOTE THAT THE WORD CONTAINS"
1060 PRINT"2 PARTS. THE COMPUTER WILL"
1070 PRINT"SELECT EITHER THE LEFT SIDE"
1080 PRINT"OR THE RIGHT SIDE OF THE"
1090 PRINT"WORD (RANDOM SELECTION)."
1100 PRINT"INPUT YOUR CHOICE (LEFT OR"
```

```
1110 PRINT"RIGHT) AND THE COMPUTER WILL"
1120 INPUT"TRY TO MATCH";K$
1130 IF K$<>"LEFT" AND K$<>"RIGHT" THEN 1150
1140 GOTO1180
1150 PRINT"PAY ATTENTION !!!"
1160 PRINT"INPUT THE WORD LEFT OR RIGHT..."
1170 PRINT:GOTO1100
1180 I=RND(2)
1190 ON I GOTO 1200,1210
1200 L$="LEFT":GOTO1220
1210 L$="RIGHT"
1220 PRINT TAB(5);L$
1230 PRINT"THE COMPUTER'S CHOICE WAS:"
1240 IF K$<>L$ THEN 1270
1250 PRINT"EQUAL TO YOURS, VERY GOOD..."
1260 PRINT:D=D:GOTO830
1270 PRINT"NOT EQUAL TO YOURS....."
1280 PRINT"THE NUMBER OF LETTERS IN THAT"
1290 PRINT"WORD WILL BE ADDED TO YOUR"
1300 PRINT"TOTAL SCORE...SORRY."
1310 PRINT:D=D+R:GOTO830
1400 REM END
1410 CLS
1420 PRINT
1430 IF D>=1 THEN 1490
1440 PRINT"CONGRATULATIONS !!!"
1450 PRINT"YOU HAVE COMPLETED ALL 45"
1460 PRINT"WORDS AND KEPT YOUR SCORE"
1470 PRINT"AT (OR BELOW) 0 (ZERO)."
1480 GOTO1550
1490 PRINT"SORRY...YOU LOSE !!"
1500 PRINT"YOUR FINAL SCORE IS ABOVE"
1510 PRINT"0 (ZERO). AS A MATTER OF"
1520 PRINT"FACT YOUR TOTAL SCORE WAS"
1530 PRINT"PLUS ";D;" POINTS. SOMETHING"
1540 PRINT"YOU DIDN'T WANT..."
1550 PRINT
1560 PRINT
1570 PRINT"END OF PROGRAM RUN"
1580 GOTO1580
5000 DATA SOMEWHERE,NOWHERE,AFTERWARDS
5010 DATA INWARD,OUTWARD,TOGETHER
5020 DATA PASSPORT,PAYDAY,OVERCHARGE
5030 DATA WOODMAN,IMPORT,IMPROVE
```

```
5040 DATA INCLINE,INJECTOR,AMONG
5050 DATA EYEBALL,SUNDIAL,REACTION
5060 DATA RAWHIDE,REACT,KINDERGARDEN
5070 DATA OUTLAW,OUTPUT,OUTSTANDING
5080 DATA OUTRIGGER,OUTPOST,OUTFIT
5090 DATA FIGUREHEAD,PRESSURE,ACORN
5100 DATA BADLANDS,WOODCHUCK,BLACKOUT
5110 DATA BLACKMAIL,DRUMSTICK,DRIFTWOOD
5120 DATA FOREHAND,FORBID,FOOTBALL
5130 DATA BASEBALL,HANDBALL,RACQUETBALL
5140 DATA MOUSETRAP,FOXHOUND,FRAMEWORK
```

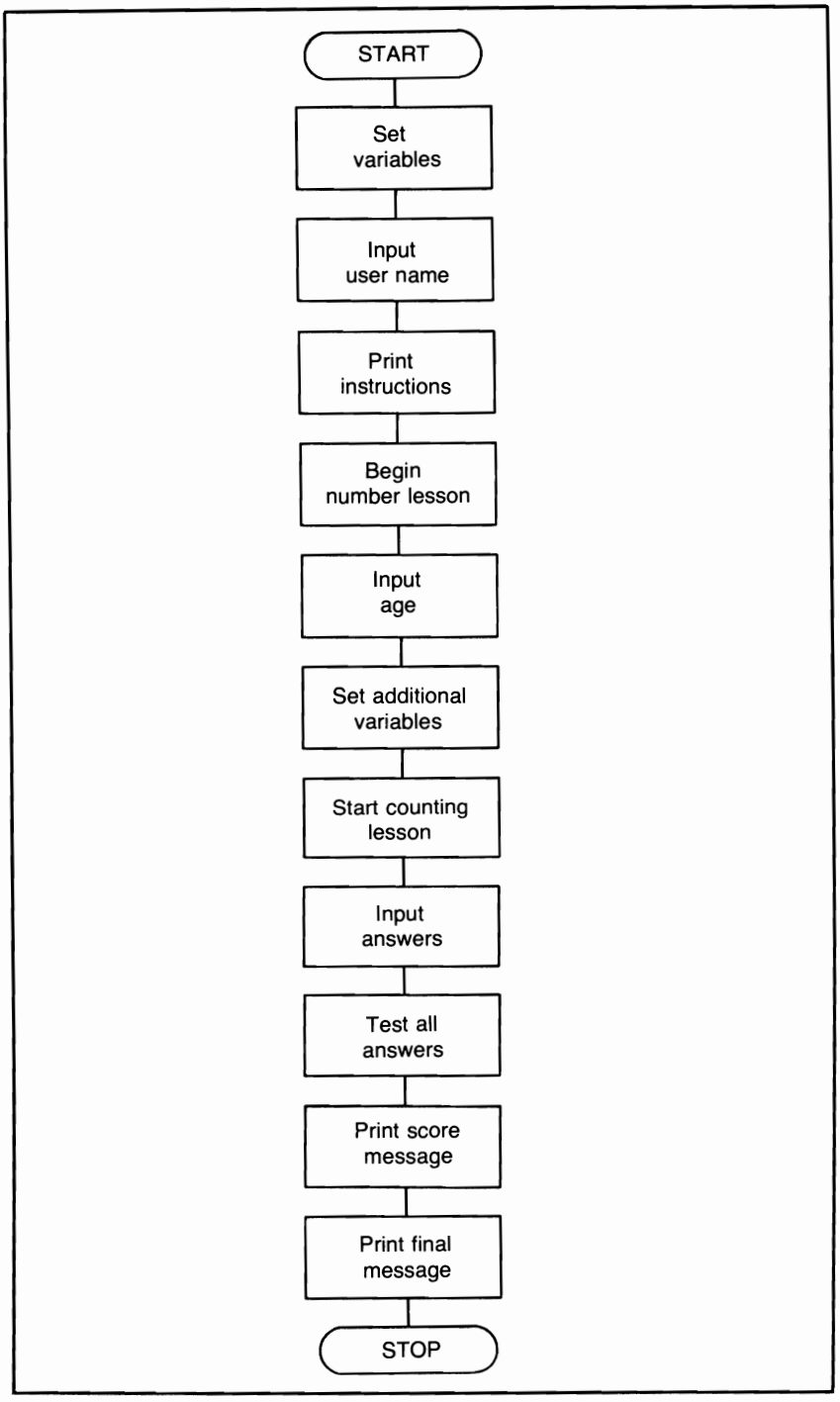
ALL ABOUT NUMBERS



This program will teach your child the digits zero through nine. Then it teaches counting, using pictures of trees to help the child count to his or her own age. The program continues with higher counting exercises and asks your child (by name) to input the number of trees drawn. Finally the program branches into two digit counting.

Sample Run

```
PLEASE INPUT YOUR FIRST NAME? DAVID
        *** ALL ABOUT NUMBERS ***

THIS IS A LEARNING PROGRAM DESIGNED
FOR PRESCHOOL CHILDREN OR
CHILDREN THAT ARE JUST BEGINNING
SCHOOL. YOU CAN HELP THEM BY READING
ALL NECESSARY INSTRUCTIONS/INFORMATION.

INSTRUCTIONS:
NUMBERS HAVE BEEN AROUND SINCE TIME
BEGAN. YOU WILL LEARN ALL ABOUT
NUMBERS, FROM THEIR SHAPES TO
SIMPLE COUNTING.

PRESS THE ENTER KEY?

ALL NUMBERS ARE MADE FROM A BASIC
```



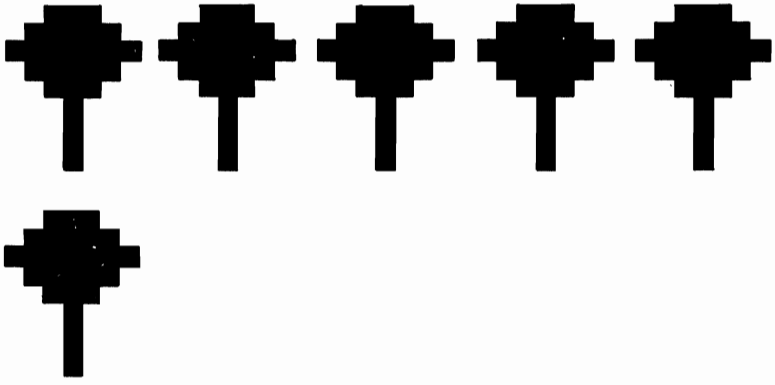
Flowchart for *All About Numbers*

GROUP OR SET OF NUMBERS. THESE ARE:
0 1 2 3 4 5 6 7 8 9

NOTICE THE 'SHAPE' OF EACH NUMBER.
THE NUMBERS 0-9 CAN BE USED IN ANY
COMBINATION TO MAKE ANY NUMBER YOU
DESIRE.
HOW OLD ARE YOU, DAVID? 6

AS AN EXAMPLE, WE'LL USE TREES
AND COUNT TO YOUR AGE, DAVID.

PRESS ENTER?



DID YOU COUNT AS THE TREES
WERE DRAWN DAVID?
YOU SHOULD HAVE.

THE NUMERAL '0' WASN'T USED BECAUSE
WE STARTED COUNTING WITH '1'
NOT '0.'

PRESS ENTER?

NOW WE'LL USE THE TREES AGAIN, BUT
THIS TIME WE WILL COUNT EVEN
HIGHER.

PRESS ENTER?

Program Listing

```
10 REM PROGRAM TITLE: ALL ABOUT NUMBERS
20 CLS
30 GOTO70
50 FOR T=1TO1000:NEXT
60 RETURN
70 Q1=24:Q2=27:Q3=30:Q4=33
80 INPUT"PLEASE INPUT YOUR FIRST NAME";A$
90 CLS:R=3:RR=82
100 PRINT TAB(15);"*** ALL ABOUT NUMBERS ***"
110 PRINT
120 PRINT"THIS IS A LEARNING PROGRAM DESIGNED"
130 PRINT"FOR PRESCHOOL CHILDREN OR"
140 PRINT"CHILDREN THAT ARE JUST BEGINNING"
150 PRINT"SCHOOL. YOU CAN HELP THEM BY READING"
160 PRINT"ALL NECESSARY INSTRUCTIONS/
    INFORMATION."
170 PRINT
180 PRINT"INSTRUCTIONS:"
190 PRINT"NUMBERS HAVE BEEN AROUND SINCE TIME"
200 PRINT"BEGAN. YOU WILL LEARN ALL ABOUT"
210 PRINT"NUMBERS, FROM THEIR SHAPES TO"
215 PRINT"SIMPLE COUNTING."
220 PRINT
230 INPUT"PRESS THE ENTER KEY";X
240 PRINT
250 PRINT"ALL NUMBERS ARE MADE FROM A BASIC"
260 PRINT"GROUP OR SET OF NUMBERS THESE ARE:"
270 GOSUB50
280 X=0:PRINT
290 PRINTX;
300 FOR T=1TO500:NEXT
310 X=X+1
320 IF X<=9 THEN290
330 PRINT
331 PRINT"NOTICE THE 'SHAPE' OF EACH NUMBER."
332 GOSUB50
340 PRINT"THE NUMBERS 0-9 CAN BE USED IN ANY"
350 PRINT"COMBINATION TO MAKE ANY NUMBER YOU"
360 PRINT"DESIRE."
365 PRINT
370 PRINT"HOW OLD ARE YOU, ";A$;
372 INPUT A
```

```
375 PRINT
380 PRINT"AS AN EXAMPLE, WE'LL USE TREES"
390 PRINT"AND COUNT TO YOUR AGE ";A$;"."
400 PRINT
410 INPUT"PRESS ENTER";X
420 X=1:I=198:I1=I:CLS
425 D=0:F=10:GOSUB430:GOTO440
430 J=10:K=20:M=8:N=22
435 RETURN
440 FOR Q=JTOK
450 SET(Q,D):SET(Q,D+4):NEXT
460 FOR Q=MTON
470 SET(Q,D+1):SET(Q,D+3):NEXT
480 FOR Q=M-2TON+2
490 SET(Q,D+2):NEXT
500 FOR Q=D+5TOD+7
510 SET(F+4,Q):SET(F+5,Q):SET(F+6,Q)
520 NEXT
530 FOR Q=J+2TOK-2
540 SET(Q,D+8):NEXT
541 IF BB=1 THEN 870
542 IF GK=1 THEN 870
545 PRINT@I,X;:I=I+10
550 X=X+1
560 IF X<=A AND X>=6 AND U=0 THEN 610
570 IF X<=A THEN 580 ELSE 700
580 J=K+10:F=K+10:K=K+20
590 M=N+6:N=N+20
592 IF GK=1 RETURN
595 IF X=11 THEN 650
600 FOR T=1TO225:NEXT:GOTO440
610 U=1:GOSUB430
620 D=D+12:F=10
630 I=I1+256
640 FOR T=1TO500:NEXT:GOTO440
650 REM COUNT (AGE) LIMIT
660 PRINT@I+128-40,"LIMIT REACHED...AGE";X-1
670 PRINT"PROGRAM AGE LIMIT REACHED....."
675 GOSUB50
700 PRINT
710 PRINT"DID YOU COUNT AS THE TREES"
720 PRINT"WERE DRAWN ";A$;"?"
730 PRINT"YOU SHOULD HAVE."
740 PRINT
```

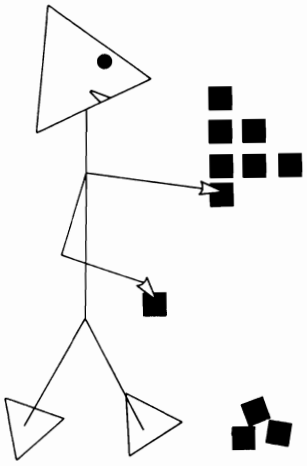
```
750 PRINT"THE NUMERAL '0' WASN'T USED BECAUSE"
760 PRINT"WE START COUNTING WITH '1'"
770 PRINT"NOT '0' (ZERO)."
780 PRINT
790 INPUT"PRESS ENTER";Z
800 CLS
810 PRINT
820 PRINT"NOW WE'LL USE THE TREES AGAIN, BUT"
830 PRINT"THIS TIME WE WILL COUNT EVEN"
840 PRINT"HIGHER."
850 GK=1:X=1:B=10
860 GOTO400
870 X=X+1
875 FOR T=1TO225:NEXT
880 IF X=6 THEN 920
890 IF X=B THEN 945
895 IF X=JB THEN 1270
900 GOSUB580
910 GOTO440
920 D=D+12:F=10
930 GOSUB430
940 GOTO440
945 IF BB=1 THEN 1250
950 PRINT@(I*R)-RR,;
955 IF Q$="NO" AND DF=1 AND BB=1 THEN 1310
960 PRINT"COUNT THE TREES ";
965 IF PL=1 PRINT"AGAIN" ELSE PRINT
970 PRINT"AND INPUT THE NUMBER";
980 INPUT AA$
985 AA=VAL(AA$)
990 IF AA<>X-1 THEN 1010
1000 PRINT"VERY WELL DONE ";A$;" !!!"
1005 FOR T=1TO1000:NEXT:GOTO1125
1010 PRINT"SORRY ";A$;" THAT IS INCORRECT."
1011 IF X-1>9 AND LEN(AA$)<=1 THEN TX=1:GOTO1040
1015 DF=1
1020 INPUT"DO YOU WANT TO TRY AGAIN";Q$
1025 PL=1
1030 IF Q$="YES" AND BB=0 THEN 1050
1035 IF Q$="NO" AND BB=0 THEN MV=1:GOTO1050
1040 Q1=33:Q2=36:Q3=39:Q4=42
1045 IF TX=1 GOSUB50
1050 FOR Y=0TO70
1060 RESET(Y,Q1)
```

```
1070 RESET(Y,Q2)
1080 RESET(Y,Q3)
1090 RESET(Y,Q4)
1100 NEXT
1102 IF MV=1 THEN 1140
1105 IF TX=1 TX=0:GOTO1400
1110 FOR T=1TO500:NEXT
1111 IF DF=1 AND BB=1 THEN 950
1115 IF GK=2 THEN 1140
1120 GOTO950
1125 IF BB=1 THEN 1300
1130 GK=2:GOTO1050
1140 PRINT@(I*3)-82,;
1145 IF MV=1 MV=0:GOTO1350
1150 PRINT"CAN YOU COUNT HIGHER THAN";
1160 PRINT X-1;
1170 INPUT Q$
1180 IF Q$="YES" THEN 1200
1190 PRINT"YOU SHOULD TRY ANYWAY, O.K.?"
1195 GOTO1205
1200 PRINT"WE'LL SOON FIND OUT !!"
1205 FOR T=1TO1500:NEXT:GOTO1500
1210 REM COUNT TO 15
1220 X=1:BB=1:JB=16:D=0:F=10:PL=0
1230 GOSUB430:GOTO440
1240 X=X+1
1250 IF X=JB THEN 1270
1260 D=D+12:F=10:GOSUB430:GOTO1230
1270 R=R+1:RR=88
1280 GOTO950
1300 GOTO2100
1310 PRINT"TRY ANYWAY !!!"
1320 Q$="":DF=0
1330 GOSUB50
1340 GOTO950
1350 PRINT"YOUR ANSWER WAS INCORRECT, BUT"
1360 GOTO1150
1400 REM SHOULD BE A TWO DIGIT INPUT
1405 PRINT@(I*R)-RR,;
1410 PRINT"(HINT: WE ARE WORKING WITH 2"
1420 PRINT"DIGIT NUMBERS, REMEMBER ?"
1430 GOSUB50
1440 GOTO1015
1500 PRINT
```

```
1510 PRINT"WHEN COUNTING HIGHER THAN 9"
1520 PRINT"REMEMBER THAT THERE WILL BE"
1530 PRINT"MORE THAN ONE DIGIT IN A"
1540 PRINT"NUMBER, LIKE THIS:"
1545 FOR T=1TO2000:NEXT
1550 PRINT
1560 FOR W=1TO10:FOR WW=1TO200:NEXT WW
1570 PRINT W;
1580 NEXT
1590 PRINT
1600 FOR W=11TO20:FOR WW=1TO200:NEXT WW
1610 PRINT W;
1620 NEXT
1630 PRINT:PRINT
1640 PRINT"NOTICE THAT AFTER THE NUMBER 9"
1650 PRINT"THE NUMBERS ARE IN PAIRS (OR TWOS)."
1660 PRINT"PRONOUNCE THE NUMBERS AS THE"
1670 PRINT"COMPUTER 'BLANKS' THEM."
1680 FOR T=1TO2000:NEXT
1690 NM=10:PY=539:JF=1
1700 PRINT@PY,"  ";:FOR T=1TO200:NEXT
1710 PRINT@PY,NM;:FOR T=1TO100:NEXT
1720 IF JF<>3 THEN 1740
1725 IF NM>=11 THEN 1750
1730 PY=576:GOTO1750
1740 JF=JF+1:FOR T=1TO100:NEXT:GOTO1700
1750 NM=NM+1:JF=1
1755 IF NM>=12 THEN PY=PY+4
1760 IF NM=21 THEN 1780
1770 GOTO1700
1780 FOR Y=0TO70
1790 RESET(Y,Q1+9):RESET(Y,Q2+9)
1800 RESET(Y,Q3+9):RESET(Y,Q4+9)
1810 NEXT
1820 PRINT@(I*R)-RR+192,;
1830 PRINT"AFTER YOU HAVE STUDIED THE"
1840 PRINT"NUMBERS PRESS THE ENTER"
1850 INPUT"KEY";Z
1860 PRINT"OF COURSE THE COUNT CAN GO"
1870 PRINT"MUCH HIGHER THAN 20, BUT"
1880 PRINT"WE'RE NOT CONCERNED WITH THOSE"
1890 PRINT"NUMBERS RIGHT NOW."
1900 FOR T=1TO3000:NEXT
1910 CLS
```

```
1920 PRINT
1930 PRINT"USING OUR EARILER EXAMPLES, THE"
1940 PRINT"TREES, WE WILL NOW COUNT"
1950 PRINT"HIGHER THAN 9."
1960 INPUT"PRESS THE ENTER KEY WHEN READY";X
1970 CLS
1980 GK=1:Q$=""
1990 B=11:DF=0
2000 GOTO1210
2100 PRINT
2110 INPUT"PRESS THE ENTER KEY";Z
2120 CLS
2130 PRINT
2140 PRINT"THAT CONCLUDES PART I OF"
2150 PRINT"*** ALL ABOUT NUMBERS ***"
2160 PRINT
2170 PRINT"SO LONG FOR NOW ";A$
2180 PRINT"YOU'VE DONE QUITE WELL."
2190 END
```

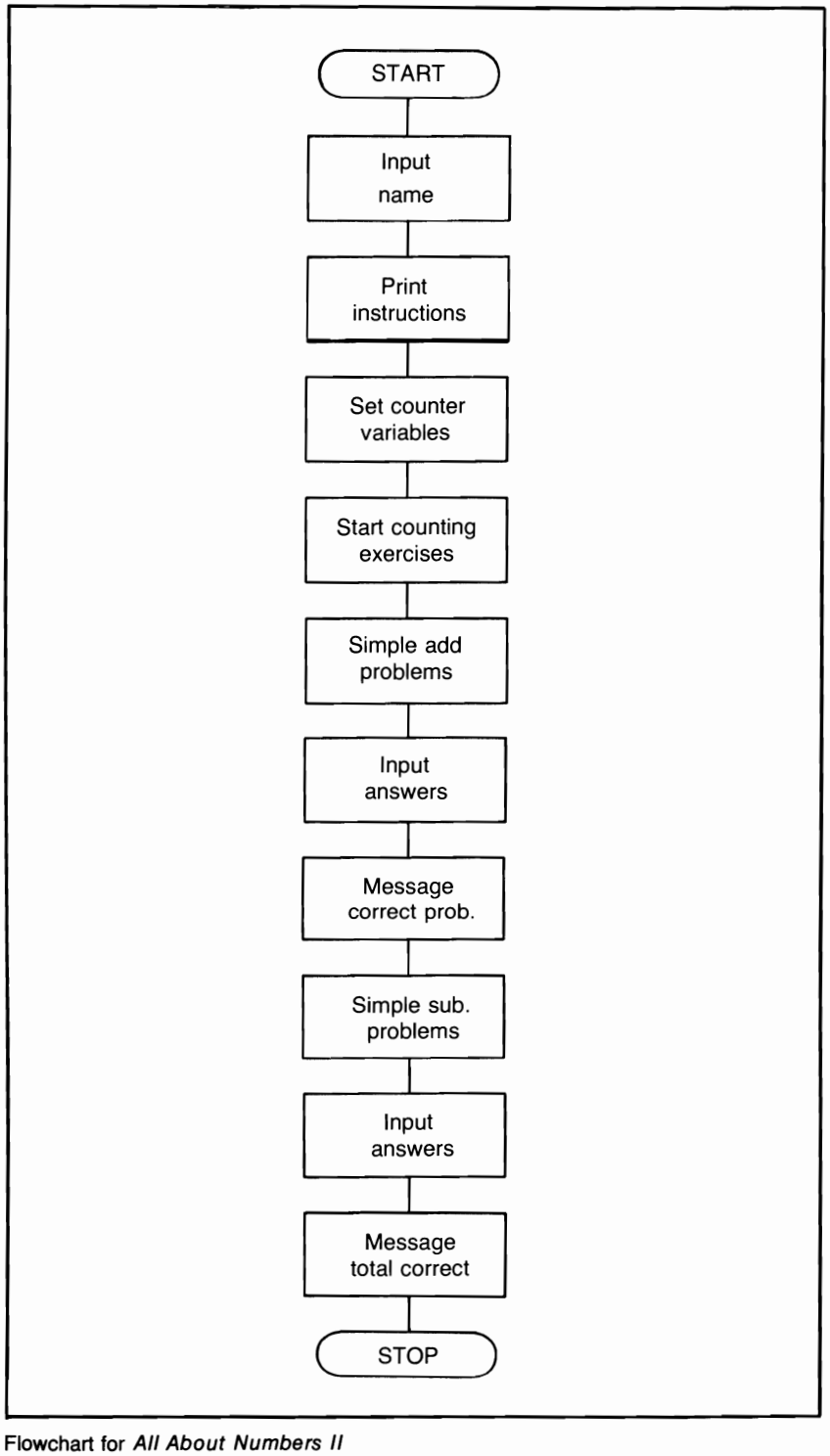
ALL ABOUT NUMBERS II



This program takes over where the preceding program left off. Counting exercises will be resumed; then your child will learn how addition works and complete some simple problems. The addition lesson will be followed by a similar lesson in subtraction.

Sample Run

```
        ** ALL ABOUT NUMBERS II **

ENTER YOUR FIRST NAME? DAVID
THANK YOU, DAVID.

INSTRUCTIONS FOR THIS PROGRAM ARE
AS FOLLOWS:
IF YOU ARE TEACHING YOUR PRESCHOOLER
ALL ABOUT NUMBERS, YOU SHOULD FIRST
HAVE HIM/HER COMPLETE PART I SUCCESS-
FULLY BEFORE HE OR SHE ATTEMPTS
THIS PART.

** PRESS ANY KEY **

THIS PROGRAM WILL CONTINUE THE
COUNTING EXERCISES; THEN IT WILL
BRANCH INTO SIMPLE ADDITION/SUBTRACTION.
```



Flowchart for *All About Numbers II*

SO IF YOU ARE READY, DAVID
JUST PRESS ANY KEYS, O.K.?

THE EXAMPLES THAT WERE JUST
GIVEN HAVE SHOWN YOU NUMBERS
FROM 1 THROUGH 40, AND HOW MANY
'BLOCKS' IT TAKES TO MAKE EACH
NUMBER. YOU SHOULD HAVE COUNTED
EACH BLOCK, DAVID, AS PART OF
YOUR COUNTING EXERCISE.

WE WILL NOW BRANCH TO SIMPLE
ADDITION.
ADDITION OR ADDING IS WHAT WE DO
TO INCREASE A NUMBER BY ANY GIVEN
AMOUNT. SAMPLE PROBLEM:
JOHN HAS 3 APPLES THAT HE
BOUGHT AT THE STORE. HIS MOTHER
ALREADY HAD 2 APPLES AT THE
HOUSE. TAKING THE APPLES THAT
JOHN BOUGHT AND ADDING THE APPLES
THAT HIS MOTHER HAD, HOW MANY
APPLES DOES JOHN HAVE? 3

YOU ARE INCORRECT, DAVID !!!
ALL YOU WOULD HAVE HAD TO
DO WAS TO COUNT JOHN'S APPLES AND
THEN TO CONTINUE COUNTING THE
APPLES HIS MOTHER ALREADY HAD.

This very short sample run should give you a general idea of how the program works. It will teach your child how to count. Then it will present some addition and subtraction problems.

Program Listing

```
2900 DIM X(30),W(30),F(40)
2910 DIM G(40),U(30),A(15)
2920 RANDOM
3000 REM PROGRAM TITLE: ALL ABOUT NUMBERS II
3010 REM IF YOU HAVE PLENTY OF MEMORY
3020 REM SPACE AVAILABLE YOU CAN COMBINE
3030 REM * ALL ABOUT NUMBERS PART I *
```

```
3040 REM WITH THIS PART (PART II)
3050 REM REQUIREMENTS WOULD BE ATLEAST
3060 REM 32K OF RAM
3065 CLS
3070 PRINT TAB(15);"** ALL ABOUT NUMBERS II **"
3080 PRINT
3090 INPUT"ENTER YOUR FIRST NAME";A$
3100 PRINT"THANK YOU, ";A$;"."
3110 PRINT
3120 PRINT"INSTRUCTIONS FOR THIS PROGRAM ARE"
3130 PRINT"AS FOLLOWS:"
3140 PRINT"IF YOU ARE TEACHING YOUR PRESCHOOLER"
3150 PRINT"ALL ABOUT NUMBERS, YOU SHOULD FIRST"
3160 PRINT"HAVE HIM/HER COMPLETE PART I
     SUCCESS-"
3170 PRINT"FULLY BEFORE HE/SHE ATTEMPTS THIS
     PART."
3180 PRINT
3190 PRINT"** PRESS ANY KEY **"
3200 Z$=INKEY$:IF Z$="" THEN 3200
3210 CLS
3220 PRINT
3225 IF X<>0 THEN 4230
3226 IF GX=2 THEN 4480
3227 IF GX=1 THEN 4570
3230 PRINT"THIS PROGRAM WILL CONTINUE THE"
3240 PRINT"COUNTING EXERCISES THEN IT WILL"
3250 PRINT"BRANCH INTO SIMPLE ADDITION/
     SUBTRACTION."
3320 PRINT
3330 PRINT"SO IF YOU ARE READY, ";A$;","
3340 PRINT"JUST PRESS ANY KEY, O.K.?"
3350 Z$=INKEY$:IF Z$="" THEN 3350
3355 X=1:E=15
3360 CLS
3370 J=0:G=7:H=8
3380 U=0:Y=1:T=1
3390 PRINT@J,X;
3400 FOR Q=GTOH
3410 SET(Q,U):SET(Q,Y)
3420 NEXT
3425 FOR Q1=1TO250:NEXT
3430 IF X>=2 THEN 3490
```

```
3440 IF X=E GOSUB 3590:GOTO3630
3450 X=X+1:U=Y+2:Y=Y+3
3455 IF X=41 THEN 3700
3460 J=J+64
3470 GOTO3390
3490 IF T<>X THEN 3510
3500 T=1
3505 G=7:H=8:GOTO3440
3510 G=H+2:H=H+3
3520 T=T+1
3530 GOTO3400
3590 PRINT
3600 PRINT"STUDY...THEN PRESS ANY KEY.";
3610 Z$=INKEY$:IF Z$="" THEN3610
3620 RETURN
3630 X=X+1:E=E+14
3640 GOTO3360
3700 GOSUB3590
3710 CLS:PRINT
3715 IF FG=1 THEN 3835
3720 PRINT"THE EXAMPLES THAT WERE JUST"
3730 PRINT"GIVEN HAVE SHOWN YOU NUMBERS"
3740 PRINT"FROM 1 THROUGH 40, AND HOW MANY"
3750 PRINT"'BLOCKS' IT TAKES TO MAKE EACH"
3760 PRINT"NUMBER. YOU SHOULD HAVE COUNTED"
3770 PRINT"EACH BLOCK ";A$;" AS PART OF"
3780 PRINT"YOUR COUNTING EXERCISE."
3790 PRINT
3800 PRINT"DO YOU WANT TO REVIEW THE COUNTING"
3810 PRINT"EXERCISE AGAIN ";A$;
3820 INPUT Q$
3830 IF Q$<>"NO" THEN 3340
3835 CLS
3840 PRINT
3850 PRINT"WE WILL NOW BRANCH INTO SIMPLE"
3860 PRINT"ADDITION."
3870 PRINT"ADDITION OR ADDING IS WHAT WE DO"
3880 PRINT"TO INCREASE A NUMBER BY ANY GIVEN"
3890 PRINT"AMOUNT. SAMPLE PROBLEM:"
3900 PRINT"JOHN HAS 3 APPLES THAT HE"
3910 PRINT"BOUGHT AT THE STORE. HIS MOTHER"
3920 PRINT"ALREADY HAD 2 APPLES AT THE"
3930 PRINT"HOUSE. TAKING THE APPLES THAT"
3940 PRINT"JOHN BOUGHT AND ADDING THE APPLES"
```

```
3950 PRINT"THAT HIS MOTHER HAD, HOW MANY"
3960 PRINT"APPLES DOES JOHN NOW HAVE";
3970 INPUT A
3975 PRINT:PRINT
3980 IF A<>5 THEN 4240
3990 PRINT"YOU ARE CORRECT ";A$;"."
3995 FOR T=1TO1500:NEXT
4000 PRINT"THE 'SUM' OF JOHNS' APPLES:
4010 FOR X=56TO65
4020 SET(X,42):SET(X,43):NEXT
4030 FOR X=58TO59:RESET(X,42):RESET(X,43):NEXT
4050 FOR X=62TO63:RESET(X,42):RESET(X,43):NEXT
4070 PRINT"PLUS THE APPLES HIS MOTHER HAS:
4080 FOR X=65TO70
4090 SET(X,42):SET(X,43):NEXT
4100 RESET(67,42):RESET(67,43)
4110 RESET(68,42):RESET(68,43)
4120 PRINT"EQUALS A TOTAL OF:
4130 X=56:Y=42
4140 IF X<>77 THEN 4160
4150 GOTO4190
4160 SET(X,Y):SET(X,Y+1)
4170 X=X+1
4180 GOTO4140
4190 FOR X=56TO77STEP4
4200 RESET(X,Y):RESET(X,Y+1)
4210 NEXT
4220 PRINT"5 APPLES...":PRINT
4225 GOTO3190
4230 GOTO4370
4240 PRINT"YOU ARE INCORRECT ";A$;" !!!"
4250 PRINT"ALL YOU WOULD HAVE HAD TO"
4260 PRINT"DO WAS TO COUNT JOHN'S APPLES AND"
4270 PRINT"THEN TO CONTINUE COUNTING THE"
4280 PRINT"APPLES HIS MOTHER ALREADY HAD."
4285 FOR T=1TO3000:NEXT
4290 PRINT"JOHN BOUGHT 3, THAT's ";
4300 FOR X=1TO3:FOR T=1TO50
4310 NEXT T:PRINT X;:NEXT:PRINT
4315 FOR T=1TO850:NEXT
4320 PRINT"HIS MOTHER HAS 2, SO THAT'S ";
4330 FOR X=4TO5:FOR T=1TO50
4340 NEXT T:PRINT X;:NEXT:PRINT
4350 PRINT"VERY SIMPLE...RIGHT ???"
```

```
4360 GOTO4000
4370 PRINT
4380 PRINT"ANYTIME YOU ADD NUMBERS YOU"
4390 PRINT"WILL SEE (OR USE) A '+' (PLUS) SIGN."
4400 PRINT
4410 PRINT"YOU WILL NOW HAVE SOME SIMPLE"
4420 PRINT"ADDITION PROBLEMS THAT YOU MUST"
4430 PRINT"SOLVE, THEIR WILL BE NO 'BLOCKS'"
4440 PRINT"OR 'APPLES' TO HELP YOU, YOU MUST"
4450 PRINT"SOLVE ON YOUR"
4460 PRINT"OWN ";A$;"."
4470 PRINT
4475 X=0:GX=2:L=5:GOTO3190
4480 PRINT"THE COMPUTER WILL PRINT THE"
4490 PRINT"PROBLEMS ON THE SCREEN. START AT"
4500 PRINT"THE TOP LEFT, WORK ACROSS TO THE"
4510 PRINT"RIGHT, THEN DROP DOWN TO THE"
4520 PRINT"NEXT LINE.CONTINUE UNTIL ALL"
4530 PRINT"PROBLEMS HAVE BEEN COMPLETED."
4540 PRINT"REMEMBER TO PRESS THE ENTER KEY"
4550 PRINT"TO INPUT YOUR ANSWER."
4555 PRINT:HJ=1:P$="+"
4560 Y=1:GX=1:GOTO3190
4570 T=5:M=7
4580 X=RND(L)
4585 X(Y)=X
4590 IF J=1 PRINTTAB(T-1);P$;
4600 PRINT TAB(T);X;
4610 IF T<>55 THEN 4630
4620 IF J<>1 THEN 4650 ELSE 4670
4630 T=T+10:Y=Y+1
4640 GOTO4580
4650 J=1:PRINT
4660 T=5:Y=Y+1:GOTO4580
4670 T=4:PRINT
4680 W$="----"
4690 IF T<>64 THEN 4710
4700 GOTO4740
4710 PRINT TAB(T);W$;
4720 T=T+10:HJ=HJ+1
4730 GOTO4690
4735 PRINT:PRINT:PRINT:J=0:Y=Y+1:GOTO4570
4740 IF HJ<=10 THEN 4735
4745 GOSUB4750:GOTO4810
```

```
4750 I=1:N=7:V=6
4760 W(I)=X(I)+X(N)
4770 IF I<=V THEN 4790
4780 RETURN
4790 I=I+1:N=N+1
4800 GOTO4760
4810 T=261:Y=1:D=0:C=6
4820 PRINT@704,;
4830 PRINT"INPUT YOUR ANSWERS";
4840 INPUT Q
4850 PRINT@T,Q;
4860 IF Q<>W(Y) THEN D=D+1:GOSUB4882
4870 IF Y<>C THEN 4890
4880 GOTO4920
4882 F(D)=X(Y):G(D)=X(Y+6)
4885 RETURN
4890 T=T+10:Y=Y+1
4900 PRINT@723,"  "
4910 GOTO4820
4920 IF JK=1 THEN 4970
4930 JK=1
4940 I=13:N=19:V=19
4945 C=18:T=581:Y=13
4950 GOSUB4760
4960 GOTO4820
4970 PRINT@704,;
4980 PRINT"ALL PROBLEMS COMPLETED....."
4990 FOR T=1TO2000:NEXT
5000 CLS
5010 PRINT
5020 IF D=0 THEN 5300
5030 PRINT"YOU HAVE MISSED";D;"PROBLEMS ";A$
5040 PRINT"THESE PROBLEMS ARE:"
5050 R=1
5060 PRINTF(R);P$;G(R);"="
5062 IF PL=1 THEN U(R)=(F(R)-G(R)):GOTO5070
5065 U(R)=F(R)+G(R)
5070 IF R<>D THEN 5090
5080 FOR T=1TO1200:NEXT:GOTO5100
5090 R=R+1:GOTO5060
5100 PRINT@64,;
5110 PRINT"PLEASE INPUT THE ANSWERS.  "
5120 PRINT"START AT THE TOP & WORK DOWN.";
5130 P=201:R=1:X=0
```

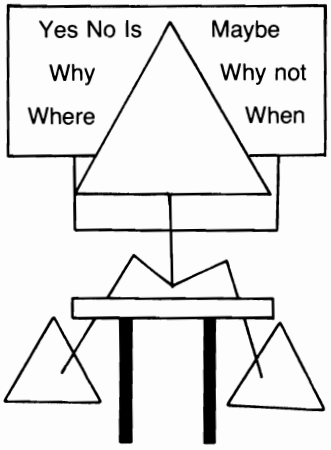
```
5135 IF R>=2 PRINT@P-9,F(R);P$;G(R);"=";
5140 PRINT@P,;
5150 INPUT Q
5160 IF Q<>U(R) THEN X=X+1:GOSUB5200
5170 IF R<>D THEN 5190
5180 GOTO5220
5190 R=R+1:P=P+64:GOTO5135
5200 F(X)=F(R):G(X)=G(R)
5210 RETURN
5220 PRINT@64,"                    ";
5230 PRINT@128,"                       ";
5240 D=X
5250 PRINT@64,;
5260 GOTO4980
5300 CLS
5310 PRINT
5320 PRINT"YOU HAVE COMPLETED 12 PROBLEMS."
5330 PRINT"ALL YOUR ANSWERS ARE CORRECT,";A$;"!!!"
5340 PRINT"VERY WELL DONE !"
5350 PRINT
5355 IF PK=1 THEN 6610
5360 PRINT"NOW YOU WILL LEARN HOW TO"
5370 PRINT"SUBTRACT AND THEN DO 12"
5380 PRINT"SIMPLE SUBTRACTION PROBLEMS."
5390 GOTO5430
5400 PRINT"*** PRESS ANY KEY ***"
5410 Z$=INKEY$:IF Z$="" THEN 5410
5420 RETURN
5430 PRINT:GOSUB5400
5440 CLS
5460 PRINT"A SIMPLE DEFINITION OF SUBTRACTION"
5470 PRINT"IS: 'TAKE AWAY'. YOU MUST"
5480 PRINT"REMEMBER THAT WITH SUBTRACTION"
5490 PRINT"THE TOP NUMBER MUST BE HIGHER"
5500 PRINT"THAN THE BOTTOM NUMBER."
5510 PRINT TAB(10);"10"
5520 PRINT TAB(10);"-5"
5530 PRINT TAB(9);"---"
5550 PRINT"IN THE EXAMPLE ABOVE YOU ARE"
5560 PRINT"SUBTRACTING (OR TAKING AWAY) 5"
5570 PRINT"FROM 10. NOTE THAT THE 10"
5580 PRINT"IS ABOVE THE 5. IF THIS PROBLEM"
5590 PRINT"WERE TO BE SWITCHED AROUND."
5600 PRINT
```

```
5610 GOSUB5400
5620 CLS
5630 PRINT
5640 PRINT TAB(12);"5"
5650 PRINT TAB(10);"-10"
5660 PRINT TAB(10);"---"
5670 PRINT
5680 PRINT"THE PROBLEM COULD NOT BE WORKED"
5690 PRINT"SUCCESSFULLY. SO REMEMBER THAT"
5700 PRINT"IN SUBTRACTION THE HIGHER"
5710 PRINT"NUMBER MUST BE ABOVE THE"
5720 PRINT"SMALLER ONE."
5730 PRINT
5740 GOSUB5400
5750 CLS:PRINT
5760 PRINT"FIRST YOUR SAMPLE PROBLEM ";A$;","
5770 PRINT"USING THE APPLES AGAIN."
5780 PRINT
5790 PRINT"JOHN HAS 5 APPLES IN HIS"
5800 PRINT"REFRIGERATOR. 2 OF HIS FRIENDS"
5810 PRINT"CAME OVER TO PLAY. JOHN ASKED"
5820 PRINT"THEM IF THEY WANTED AN APPLE."
5830 PRINT"BOTH OF HIS FRIENDS SAID"
5840 PRINT"YES. JOHN ALSO ATE 1 APPLE."
5850 PRINT"HOW MANY APPLES DOES JOHN"
5860 PRINT"NOW HAVE LEFT";
5870 INPUT Q
5880 PRINT
5890 GOSUB5400
5900 IF Q<>2 THEN 5940
5910 PRINT"CONGRATULATIONS ";A$;" !!!"
5920 PRINT"YOU'VE ANSWERED CORRECTLY."
5930 GOTO6020
5940 PRINT"THAT'S WRONG ";A$;","
5950 PRINT"JOHN STARTED OUT WITH 5 APPLES."
5960 PRINT"HE GAVE 2 TO HIS FRIENDS."
5970 PRINT"HE ATE 1 APPLE."
5980 PRINT"YOU MUST ADD THE 2 PLUS THE 1."
5990 PRINT"THEN YOU SUBTRACT THE 3 FROM"
6000 PRINT"THE TOTAL NUMBER OF APPLES, 5."
6010 PRINT"YOU SHOULD HAVE ANSWERED 2."
6020 PRINT
6030 GOSUB5400
6040 CLS:PRINT
```

```
6050 PRINT"YOU WILL NOW HAVE TO SOLVE 12"
6060 PRINT"SIMPLE SUBTRACTION PROBLEMS."
6070 PRINT"REMEMBER THAT IN SUBTRACTION THIS"
6080 PRINT"SIGN WILL BE USED '-'. THIS IS A"
6090 PRINT"MINUS SIGN MEANING SUBTRACT."
6100 PRINT"WHEN YOU THINK YOU'RE READY,"
6110 GOSUB5400
6120 CLS:P$="-"
6130 T=5:P=5:E=1:J=5:L=9
6140 X=RND(L)
6150 Y=RND(L)
6160 IF Y>X THEN 6140
6165 IF PK=1 THEN 6175
6170 F(E)=X:G(E)=Y:GOTO6180
6175 F(K)=X:G(K)=Y
6176 IF PK=1 PRINT TAB(T);F(K);:GOTO6185
6180 PRINT TAB(T);F(E);
6185 IF E<=P THEN 6200
6190 PRINT:GOTO6220
6200 E=E+1:T=T+10
6205 IF PK=1 K=K+1
6210 GOTO6140
6220 M=1:T=4
6225 IF PK=1 M=7:J=11
6230 PRINT TAB(T);P$;G(M);
6240 IF M<=J THEN 6270
6250 GOTO6290
6270 M=M+1:T=T+10
6280 GOTO6230
6290 PRINT
6300 M=1:T=4:J=5
6310 PRINT TAB(T);W$;
6320 IF M<=J THEN M=M+1:T=T+10:GOTO6310
6325 IF PK=1 THEN 6400
6330 PRINT:PRINT:PRINT
6340 PK=1:T=5:K=7
6390 GOTO6130
6400 T=197:I=1:D=0:C=5
6410 PRINT@704,;
6420 PRINT"INPUT YOUR ANSWERS";
6430 INPUT Q
6440 PRINT@T,Q;
6450 IF Q<>(F(I)-G(I)) THEN D=D+1:GOSUB6480
6460 IF I<=C THEN 6500
```

```
6470 GOTO6530
6480 F(D)=F(I):G(D)=G(I)
6490 RETURN
6500 T=T+10:I=I+1
6510 PRINT@723,"   "
6520 GOTO6410
6530 IF PL=1 THEN 6600
6540 PL=1:T=517
6580 I=7:C=11:GOTO6410
6600 GOTO4970
6610 PRINT
6620 PRINT"YOU HAVE COMPLETED 12 PROBLEMS"
6630 PRINT"IN ADDITION AND 12 PROBLEMS IN"
6640 PRINT"SUBTRACTION."
6650 PRINT
6660 PRINT"AFTER YOU REST AWHILE YOU CAN"
6670 PRINT"RUN THE PROGRAM AGAIN, TO GET"
6680 PRINT"MORE PRACTICE."
6690 PRINT
6700 PRINT"END OF ** ALL ABOUT NUMBERS II **"
6710 END
```

WORDS OF IMPORTANCE

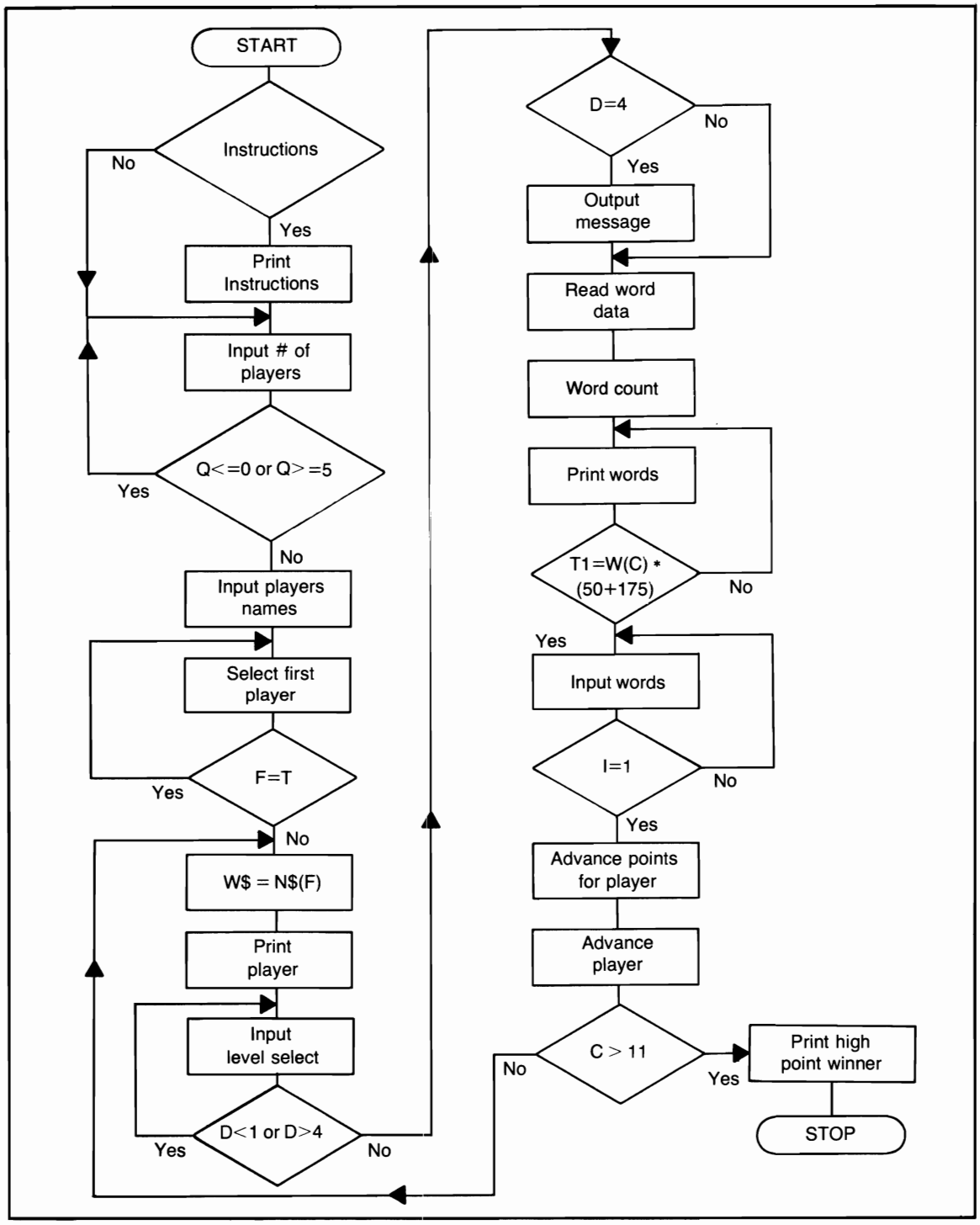


Why are they important words? Because you must memorize all the words before the screen clears; then input the list in reverse order. The length of time the words are left on the screen will increase as the number of words printed increases. Good luck on your score!!

Sample Run

```
** WORDS OF IMPORTANCE **

INSTRUCTIONS (Y/N)? Y

THIS GAME PROGRAM WILL TEST
YOUR MENTAL AGILITY TO ITS
EXTREMES. YOU MUST HAVE TOP-NOTCH
SKILLS AND BE ON YOUR TOES AT
ALL TIMES TO COMPETE SUCCESSFULLY.
UP TO FOUR PEOPLE CAN PLAY. THERE
ARE FOUR DIFFICULTY LEVELS.

ENTER?

TO PLAY:
YOU WILL BE GIVEN 2 WORDS
(SIMPLE, COMPLEX OR ABBREVIATIONS
DEPENDING UPON THE LEVEL SELECTED).
AFTER A PREDETERMINED TIME
```

```
PERIOD THE VIDEO WILL
BE CLEARED AND YOU
MUST ENTER THE WORD(S) IN THEIR
REVERSE ORDER. (NO TIME LIMIT
IS USED FOR INPUT OF WORDS.)
AFTER YOU HAVE FINISHED, THE
NEXT PERSON WILL PLAY, AND SO
ON. AFTER EVERYONE HAS PLAYED, THE
COMPUTER WILL PRINT THE SCORES
AT THAT POINT IN THE GAME.

ENTER?

HOW MANY PLAYERS? 2
INPUT THE 2 PLAYERS FIRST
NAMES ONLY

ANNAJEAN
DAVID

THE COMPUTER WILL NOW SELECT
THE FIRST PLAYER...

IT'S YOUR PLAY, DAVID.

SELECT YOUR DIFFICULTY LEVEL.
1) SIMPLE WORDS
2) COMPLEX WORDS
3) 1 & 2 COMBINED
4) ABBREVIATIONS
SELECT NOW? 2

THESE ARE YOUR 2 WORDS.
TIMING WILL BEGIN AFTER ALL
WORDS ARE PRINTED...

COMPUTER
DICTIONARY

YOU MUST NOW INPUT THE 2
WORDS IN REVERSE ORDER.
DICTIONARY
COMPUTER
```



Flowchart for *Words of Importance*

```
IT'S YOUR PLAY, ANNAJEAN.

SELECT YOUR DIFFICULTY LEVEL.
1) SIMPLE WORDS
2) COMPLEX WORDS
3) 1 & 2 COMBINED
4) ABBREVIATIONS
SELECT NOW? 1

THESE ARE YOUR 2 WORDS.
TIMING WILL BEGIN AFTER ALL
WORDS ARE PRINTED...

CAT
DOG

YOU MUST NOW INPUT THE 2
WORDS IN REVERSE ORDER.

DOG
CAT

** POINTS TOTAL SO FAR **
ANNAJEAN HAS 100 POINTS.
DAVID HAS 100 POINTS.

IT'S YOUR PLAY, DAVID.

SELECT YOUR DIFFICULTY LEVEL
1) SIMPLE WORDS
2) COMPLEX WORDS
3) 1 & 2 COMBINED
4) ABBREVIATIONS
SELECT NOW? 2

THESE ARE YOUR 3 WORDS.
TIMING WILL BEGIN AFTER ALL
WORDS ARE PRINTED...

COMPUTER
DICTIONARY
CONFIDE
```

```
YOU MUST NOW INPUT THE 3
WORDS IN REVERSE ORDER.

CONFIDE
DICTIONARY
COMPUTER

IT'S YOUR PLAY, ANNAJEAN.

SELECT YOUR DIFFICULTY LEVEL.
1) SIMPLE WORDS
2) COMPLEX WORDS
3) 1 & 2 COMBINED
4) ABBREVIATIONS
SELECT NOW? 1

THESE ARE YOUR 3 WORDS.
TIMING WILL BEGIN AFTER ALL
WORDS ARE PRINTED...

CAT
DOG
BOY

YOU MUST NOW INPUT THE 3
WORDS IN REVERSE ORDER.

BOY
DOG
CAT

** POINTS TOTAL SO FAR **
ANNAJEAN HAS 250 POINTS.
DAVID HAS 250 POINTS.

IT'S YOUR PLAY, DAVID.

SELECT YOUR LEVEL OF DIFFICULTY
1) SIMPLE WORDS
2) COMPLEX WORDS
3) 1 & 2 COMBINED
4) ABBREVIATIONS
SELECT NOW? 2
```

///// STOP /////

The video clears after a certain time limit so that each player will have to use their memory when more words are printed.

Program Listing

```
10 REM PROGRAM TITLE:
20 REM WORDS OF IMPORTANCE
30 CLS
40 RANDOM
50 CLEAR 1000
60 PRINT"** WORDS OF IMPORTANCE **"
70 PRINT
80 INPUT"INSTRUCTIONS (Y/N)";X$
90 IF X$="N" THEN CLS:GOTO380
100 PRINT"THIS GAME PROGRAM WILL TEST"
110 PRINT"YOUR MENTAL AGILITY TO ITS"
120 PRINT"EXTREMES. YOU MUST HAVE TOP-NOTCH"
130 PRINT"SKILLS AND BE ON YOUR TOES AT"
140 PRINT"ALL TIMES TO COMPLETE SUCCESSFULLY."
150 PRINT"UP TO FOUR PEOPLE CAN PLAY. THERE"
160 PRINT"ARE FOUR DIFFICULTY LEVELS."
190 PRINT
200 INPUT"ENTER";X$
210 CLS
220 PRINT"TO PLAY:"
230 PRINT"YOU WILL BE GIVEN 2 WORDS"
240 PRINT"(SIMPLE, COMPLEX OR ABBREVIATIONS"
250 PRINT"DEPENDING UPON THE LEVEL SELECTED"
260 PRINT"AFTER A PREDETERMINED TIME"
270 PRINT"PERIOD THE VIDEO WILL"
280 PRINT"BE CLEARED AND YOU"
290 PRINT"MUST ENTER THE WORD(S) IN THEIR"
300 PRINT"REVERSE ORDER. (NO TIME LIMIT"
310 PRINT"IS USED FOR INPUT OF WORDS.)"
320 PRINT"AFTER YOU HAVE FINISHED, THE"
330 PRINT"NEXT PERSON WILL PLAY, AND SO"
340 PRINT"ON. AFTER EVERYONE HAS PLAYED, THE"
350 PRINT"COMPUTER WILL PRINT THE SCORES"
360 PRINT"TO THAT POINT IN THE GAME."
370 INPUT"ENTER";X$:CLS
380 INPUT"HOW MANY PLAYERS";Q
```

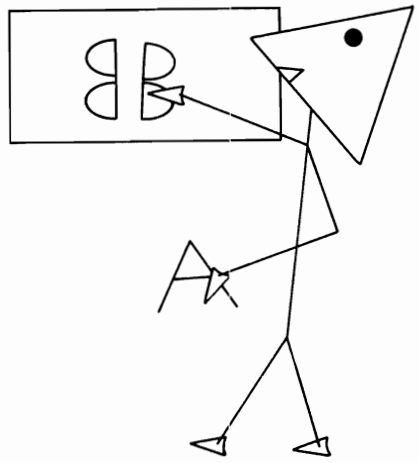
```
390 IF Q<=0 OR Q>=5 THEN 380
400 PRINT"INPUT THE";Q;"PLAYERS FIRST"
410 PRINT"NAMES ONLY"
420 FOR I=1TOQ:INPUT N$(I):NEXT
430 PRINT"THE COMPUTER WILL NOW SELECT"
440 PRINT"THE FIRST PLAYER..."
450 F=RND(Q)
460 T=RND(10)
470 FOR I=1TOQ:IF F=T THEN 490
480 NEXT:GOTO450
490 W$=N$(F)
500 PRINT"IT'S YOUR PLAY, ";W$;".":PRINT
510 PRINT"SELECT YOUR DIFFICULTY LEVEL."
520 PRINT"1) SIMPLE WORDS"
530 PRINT"2) COMPLEX WORDS"
540 PRINT"3) 1 & 2 COMBINED"
550 PRINT"4) ABBREVIATIONS"
560 INPUT"SELECT NOW";D
570 IF D<1 OR D>4 THEN 500
580 IF D=4 AND DD=0 THEN 600
590 GOTO660
600 PRINT"YOU HAVE SELECTED NUMBER";D
610 PRINT"WITH THIS SELECTION YOU WILL"
620 PRINT"RECEIVE THE ABBREVIATION"
630 PRINT"FOR EACH WORD. YOU MUST ENTER"
640 PRINT"THE COMPLETE WORDS IN THEIR"
650 PRINT"REVERSE ORDER..."
655 FOR TI=1TO3000:NEXT:DD=1
660 REM READ DATA ONCE
670 IF A=1 THEN 730
680 FOR I=1TO10:READ S$(I):W(I)=I:NEXT
690 FOR I=1TO10:READ C$(I):NEXT:GOSUB1900
700 FOR I=1TO10:READ A$(I):NEXT
710 FOR I=1TO10:READ AB$(I):NEXT
720 C=2:REM WORD COUNT
730 W(C)=C
740 REM PRINT WORD(S)
750 PRINT"THESE ARE YOUR";W(C);"WORDS."
760 PRINT"TIMING WILL BEGIN AFTER ALL"
770 PRINT"THE WORDS ARE PRINTED...":PRINT
775 FOR JK=1TO1400:NEXT
780 FOR I=1TOW(C)
790 ON D GOTO 800,830,870,930
800 REM SIMPLE WORDS
```

```
810 PRINT S$(I);:NEXT
820 GOSUB1800:GOTO1000
830 REM COMPLEX WORDS
840 PRINT C$(I)
850 NEXT
860 GOSUB1800:GOTO1000
870 REM SIMPLE & COMPLEX
880 REM H$(I) IS FOR THE
890 REM 2 STRING COMBINATIONS
900 PRINT H$(I)
910 NEXT
920 GOSUB1800:GOTO1000
930 REM ABBREVIATIONS
940 PRINT A$(I)
950 NEXT
960 GOSUB1800:GOTO1000
1000 REM INPUT OF WORDS
1005 CLS
1010 PRINT"YOU MUST NOW INPUT THE";W(C)
1020 PRINT"WORDS IN REVERSE ORDER."
1030 FOR I=W(C)TO1 STEP-1
1040 ON D GOTO 1050,1080,1110,1140
1050 INPUT U$
1060 IF U$=S$(I) THEN 1840
1070 GOTO1170
1080 INPUT U$
1090 IF U$=C$(I) THEN 1840
1100 GOTO1170
1110 INPUT U$
1120 IF U$=H$(I) THEN 1840
1130 GOTO1170
1140 REM ABBREVIATIONS
1150 INPUT U$
1160 IF U$=AB$(I) THEN 1840
1170 NEXT
1180 REM POINTS PLACEMENT FOR PLAYERS
1190 ON F GOTO 1200,1210,1220,1230
1200 R1=R1+PI:N(1)=R1:GOTO1240
1210 R2=R2+PI:N(2)=R2:GOTO1240
1220 R3=R3+PI:N(3)=R3:GOTO1240
1230 R4=R4+PI:N(4)=R4
1240 F=F+1:A=1:PI=0:U$=""
1250 IF F>Q THEN F=1
```

```
1260 AA=AA+1
1270 IF AA>=Q THEN C=C+1:AA=0:GOSUB1600
1280 IF AA=0 AND C>=11 THEN 1300
1290 GOTO490
1300 REM FINISH
1310 PRINT:PRINT"THAT'S THE GAME."
1320 REM HIGH POINT WINNER
1330 JJ=1
1340 FOR I=1TOQ
1350 IF N(I)>=N(I+1) THEN 1390
1360 W=N(I):N(I)=N(I+1):N(I+1)=W
1370 XX$=N$(I):N$(I)=N$(I+1):N$(I+1)=XX$
1380 JJ=0
1390 NEXT
1400 IF JJ=0 THEN 1330
1410 F=1:TT=1
1420 FOR I=2TOQ:IF N(F)=N(I) THEN 1440
1430 NEXT:GOTO1450
1440 TT=TT+1:GOTO1430
1450 IF TT<>Q THEN 1490
1460 PRINT"ALL PLAYERS HAVE MANAGED TO END"
1470 PRINT"WITH A TIE SCORE..."
1480 GOTO1540
1490 PRINT"THE WINNER IS: ";N$(1)
1500 PRINT"WITH A TOTAL OF";N(1);"POINTS."
1505 IF Q=1 THEN 1540
1510 PRINT"THE OTHER PLAYERS, IN ORDER OF POINTS:"
1520 FOR I=2TOQ
1530 PRINT N$(I);" HAD";N(I);"POINTS.":NEXT
1540 PRINT
1550 PRINT":: END OF GAME RUN ::"
1560 END
1600 REM POINTS TOTAL
1610 RE=1
1620 PRINT"** POINTS TOTAL ";
1630 IF C<=10 PRINT"SO FAR **" ELSE PRINT"**"
1640 PRINT N$(RE);" HAS";N(RE);"POINTS."
1650 IF RE<>Q THEN RE=RE+1:GOTO1640
1660 PRINT:RETURN
1800 REM TIMING LOOP
1810 FOR TI=1 TO W(C)*(50+175)
1820 NEXT
1830 RETURN
1840 PI=PI+50
```

```
1850 GOTO1170
1900 REM COMBINE STRINGS
1910 FOR I=1TO9 STEP 2
1920 H$(I)=S$(I):NEXT
1930 FOR I=2TO10 STEP 2
1940 H$(I)=C$(I):NEXT
1950 RETURN
2000 REM SIMPLE WORDS
2010 DATA CAT,DOG,BOY,GIRL,HI
2020 DATA HELLO,HOUSE,CAR,BOAT,TOY
2030 REM COMPLEX WORDS
2040 DATA COMPUTER,DICTIONARY,CONFIDE
2050 DATA COMPETE,ADDITIVE,FORMULA
2060 DATA PERFORATE,EXTREME,DERIVATIVE
2070 DATA CINEMATOGRAPHER
2080 REM ABBREVIATIONS
2090 DATA ABBR,ESP,INSTR,M
2100 DATA CONSTR,OBS,TECH
2110 DATA FR,AMER,ATTY
2120 REM WORDS FOR ABBREVIATIONS
2130 DATA ABBREVIATION,ESPECIALLY
2140 DATA INSTRUMENTAL,MILES,CONSTRUCTION
2150 DATA OBSOLETE,TECHNOLOGY,FROM
2160 DATA AMERICAN,ATTORNEY
```

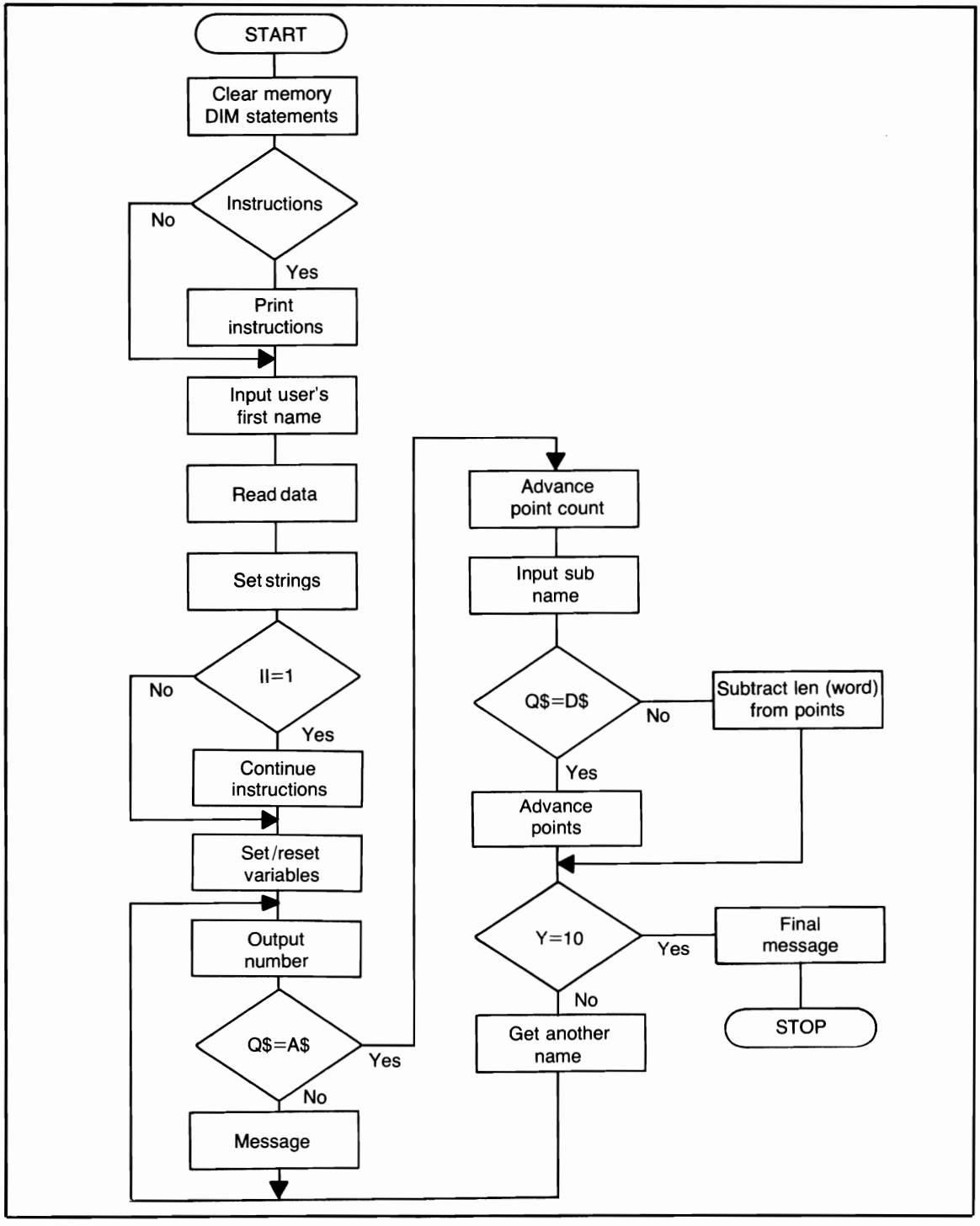
PUTTING NAMES TOGETHER



In this game, numerals will be substituted for letters in a name. The user must input what he or she thinks the chosen name is. The game could easily be changed into a code program.

Sample Run

```
        PUTTING NAMES TOGETHER

INSTRUCTIONS? YES

THE EASIEST WAY TO LEARN SOME
ONE'S NAME IS TO ASK FOR IT
THEN WRITE IT DOWN.
ALL SO FAMILIAR AND EASY, RIGHT?
WRONG!!
THIS ISN'T GOING TO BE A RUN-
OF-THE-MILL NAME GATHERING PRO-
GRAM. TO BEGIN WITH, YOU WILL
INPUT YOUR FIRST NAME? DAVID

USING YOUR NAME, THE COMPUTER WILL
SHOW YOU HOW THE PROGRAM WILL
WORK AND WHAT MUST BE DONE TO
EARN THE MOST POINTS.
IF YOU DON'T CARE FOR THE NAMES
IN THE PROGRAM YOU CAN CHANGE THE
```



Flowchart for *Putting Names Together*

```
DATA ELEMENTS AT LINES 5020 - 5040.
PRESS ENTER NOW TO SEE HOW
THE PROGRAM WORKS?

YOUR NAME IS DAVID.
SO THAT MEANS WE COULD USE
THE NUMBERS
4 1 22 9 4

AS A CODE FOR YOUR NAME.

0 1 22 9 0

TO MAKE THE GAME MORE DIFFICULT
ALL LETTERS THAT OCCUR MORE THAN
ONCE ARE REPLACED BY ZEROS.
PRESS ENTER?
THE ZEROS ARE DELETED, AND THE
NUMBERS FOR THE FIRST OCCURRENCES
OF REPEATED LETTERS ARE REINSERTED.
WE HAVE

4 1 22 9

NOW WE HAVE THE BROKEN DOWN
VERSION OF YOUR NAME.
D A V I

DERIVED FROM: DAVID
DELETING THE LETTERS THAT
WERE THE SAME, LEAVING 1
LETTER NOT PRINTED.

PRESS ENTER?

NOW IT'S YOUR TURN...
2 1 18 0 0 0

THESE NUMBERS CORRESPOND TO
THE LETTERS IN THE NAME.
(REMEMBER, THE ZEROS ARE FOR
LETTERS THAT ARE ALREADY PRINTED)
INPUT THE NAME? BABARA
```

```
VERY WELL DONE !! POINTS = 6

NOW USING WHAT YOU LEARNED
EARLIER, BREAK DOWN THE NAME
AND ENTER THE OTHER VERSION? BAR
THAT IS CORRECT... POINTS = 12

NOW FOR ANOTHER...

19 1 14 4 18 0

THESE NUMBERS CORRESPOND TO
THE LETTERS IN THE NAME.
(REMEMBER, THE ZEROS ARE FOR
LETTERS THAT ARE ALREADY PRINTED)
INPUT THE NAME? SANDRA

VERY WELL DONE !! POINTS = 18

NOW USING WHAT YOU LEARNED
EARLIER, BREAK DOWN THE NAME
AND ENTER THE OTHER VERSION? SANDR
THAT IS CORRECT... POINTS = 24

NOW FOR ANOTHER...

///// STOP /////
```

Program Listing

```
10 REM PROGRAM TITLE:
20 REM PUTTING NAMES TOGETHER
25 CLEAR1000
30 CLS:DIM L$(27),P(25),W$(27),J(25),A(25)
40 PRINT TAB(15);"PUTTING NAMES TOGETHER"
50 PRINT
60 INPUT"INSTRUCTIONS";X$
70 IF X$="N" OR X$="NO" THEN 320
80 PRINT"THE EASIEST WAY TO LEARN SOME-"
90 PRINT"ONES NAME IS TO ASK FOR IT"
100 PRINT"AND THEN WRITE IT DOWN."
110 PRINT"ALL SO FAMILIAR AND EASY, RIGHT?"
120 PRINT"WRONG !!"
```

```
130 PRINT"THIS ISN'T GOING TO BE A RUN-"
140 PRINT"OF-THE-MILL NAME GATHERING PRO-"
150 PRINT"GRAM. TO BEGIN WITH, YOU WILL"
160 INPUT"INPUT YOUR FIRST NAME";A$
170 CLS
180 PRINT"USING YOUR NAME THE COMPUTER WILL"
190 PRINT"SHOW YOU HOW THE PROGRAM WILL"
200 PRINT"WORK AND WHAT MUST BE DONE TO"
210 PRINT"EARN THE MOST POINTS."
220 PRINT"IF YOU DON'T CARE FOR THE NAMES"
230 PRINT"IN THE PROGRAM YOU CAN CHANGE THE"
240 PRINT"DATA ELEMENTS AT LINES 5020 - 5040."
260 PRINT"PRESS ENTER NOW TO SEE HOW"
270 INPUT"THE PROGRAM WORKS";X$
280 II=1:IF A$="" THEN 300
290 CLS:GOTO320
300 PRINT"YOU DIDN'T INPUT YOUR NAME"
310 INPUT"DO IT NOW";A$
320 FOR I=1TO26:READ L$(I):NEXT:Y=0
330 FOR I=1TO10:READ N$(I):NEXT
340 IF II=1 THEN 390
370 T$="THE"
380 A$=N$(Y):GOTO395
390 T$="YOUR"
395 IF II=0 AND KK=0 THEN 740
400 PRINT T$;" NAME IS ";A$"."
410 GOSUB2000
420 PRINT"SO THAT MEANS WE COULD USE"
430 PRINT"THE NUMBERS"
440 FOR I=1TOX
450 PRINT P(I);:NEXT:PRINT
460 PRINT"AS A CODE FOR ";T$;" NAME."
470 PRINT
480 GOSUB2100:GOSUB2310:IF KK=1 THEN 1100
490 FOR I=1TOX:PRINTP(I);:NEXT:PRINT
500 PRINT"TO MAKE THE GAME MORE DIFFICULT,"
510 PRINT"ALL LETTERS THAT OCCUR MORE THAN"
512 PRINT"ONCE ARE REPLACED BY ZEROS."
515 INPUT"PRESS ENTER";X$:GOSUB2230
520 PRINT"NOW, THE ZEROS ARE DELETED, AND THE"
530 PRINT"NUMBERS FOR THE FIRST OCCURRENCES"
540 PRINT"OF REPEATED LETTERS ARE REPLACED."
545 PRINT"WE HAVE:"
550 GOSUB2400
```

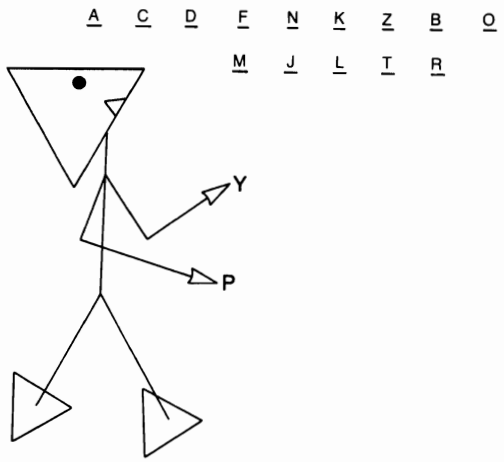
```
560 FOR I=1TOZ:PRINT A(I);:NEXT
570 GOSUB2400
580 PRINT
590 PRINT"NOW WE HAVE THE"
600 PRINT"BROKEN DOWN VERSION"
610 PRINT"OF ";T$;" NAME."
620 FOR I=1TOZ
630 PRINT L$(A(I));" ";
640 NEXT:PRINT:LL=ABS(X-Z)
650 PRINT"DERIVED FROM: ";A$;" BY"
660 PRINT"DELETING THE LETTERS THAT"
670 PRINT"WERE THE SAME, LEAVING";LL
680 REM LL FOR LETTERS NOT PRINTED
690 PRINT"LETTERS NOT PRINTED."
700 REM USERS TURN
710 PRINT
720 INPUT"PRESS ENTER";X$
730 IF II=1 THEN II=0:Y=0:PRINT:GOTO370
740 Y=Y+1:A$=N$(Y)
750 PRINT:IF Y>=3 THEN 770
760 PRINT"NOW IT'S YOUR TURN..."
770 GOSUB2000:GOSUB2100:GOSUB2310
775 IF KK=1 THEN 1100
780 FOR I=1TOX
790 PRINT J(I);:NEXT:PRINT
800 PRINT"THESE NUMBERS CORRESPOND TO"
810 PRINT"THE LETTERS IN THE NAME."
815 PRINT"(REMEMBER, THE ZEROS ARE FOR"
816 PRINT"LETTERS THAT ARE ALREADY PRINTED)"
820 INPUT"INPUT THE NAME";Q$
830 IF Q$=A$ THEN 870
840 PRINT"SORRY, THAT IS NOT THE NAME"
850 PRINT"WE ARE LOOKING FOR, TRY AGAIN."
860 PRINT:GOTO780
870 PRINT"VERY WELL DONE !! ";
880 GOSUB2450
890 PRINT"NOW USING WHAT YOU LEARNED"
900 PRINT"EARLIER, BREAK DOWN THE NAME"
910 INPUT"AND ENTER THE OTHER VERSION";Q$
920 GOSUB2000:GOSUB2100
930 FOR I=1TOX
940 D$=D$+L$(J(I)):NEXT
950 IF Q$=D$ THEN 1000
960 PI=PI-LEN(Q$)
```

```
970 PRINT"SORRY, THAT'S WRONG...";
980 GOSUB2470
990 GOTO1020
1000 PRINT"THAT IS CORRECT...";
1010 GOSUB 2450
1020 IF Y=10 THEN 1300
1030 PRINT
1040 PRINT"NOW FOR ANOTHER..."
1050 D$="":GOTO740
1100 REM NAME CONTAINS NO 2 LETTERS
1110 REM THE SAME
1120 PRINT
1130 PRINT T$;" NAME DOES NOT CONTAIN"
1140 PRINT"AT LEAST 2 LETTERS THAT ARE"
1150 PRINT"THE SAME..."
1160 PRINT"FOR AN EXAMPLE, THE COMPUTER"
1170 PRINT"WILL GIVE YOU A NAME THAT DOES."
1180 PRINT:II=0:T$="THE":Y=1
1190 INPUT"PRESS ENTER";X$
1200 GOTO380
1300 REM END
1310 PRINT
1320 PRINT"YOU HAVE DONE THE LAST OF THE";Y;
     "NAMES"
1330 PRINT"IN THE DATA LIST. YOUR FINAL"
1340 PRINT"SCORE IS";PI;". WITH WHAT"
1350 PRINT"YOU'VE LEARNED FROM THIS GAME"
1360 PRINT"PROGRAM, YOU COULD SET UP"
1370 PRINT"SOME KIND OF CODE GAME WITH YOUR"
1380 PRINT"FRIENDS..."
1390 PRINT
1400 PRINT"TO PLAY AGAIN, JUST TYPE 'RUN'"
1410 PRINT
1420 PRINT"END OF GAME RUN....."
1430 END
2000 L=1:X=LEN(A$)
2010 FOR I=1TO26
2020 IF L$(I)=MID$(A$,L,1) THEN 2050
2030 NEXT
2040 GOTO2080
2050 P(L)=I:W$(L)=MID$(A$,L,1)
2060 L=L+1
2070 GOTO2030
2080 IF L<=X THEN 2010
```

```
2090 RETURN
2100 I=1:Q=2:V=1
2110 IF I=X AND Q=X THEN RETURN
2120 IF Q=I THEN 2160
2130 IF W$(I)=W$(Q) THEN P(Q)=0:GOTO2140
2135 J(V)=P(I)
2140 IF Q<=X THEN 2160
2150 GOTO2180
2160 Q=Q+1
2170 GOTO2110
2180 IF I<=X THEN 2200
2190 RETURN
2200 REM ADVANCE COUNTERS
2210 I=I+1:Q=1:V=V+1
2220 GOTO2110
2230 REM SHORTEN COUNT FOR LETTERS
2240 Z=X:K=1
2250 FOR I=1TOZ
2260 IF J(I)<>0 THEN 2280
2270 Z=Z-1:NEXT:RETURN
2280 A(K)=J(I)
2290 K=K+1:Z=Z+1
2300 GOTO2270
2310 REM NO ZEROS ?
2320 FOR I=1TOX
2330 IF J(I)<>0 THEN 2360
2340 KK=0:I=X:RETURN
2350 NEXT:PRINTKK:RETURN
2360 KK=1:GOTO2350
2400 REM TIME LOOP
2410 FOR TT=1TO1200:NEXT
2420 RETURN
2450 REM POINTS
2460 PI=PI+X
2470 PRINT TAB(20);"POINTS =";PI
2480 RETURN
5000 DATA A,B,C,D,E,F,G,H,I,J,K,L
5010 DATA M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z
5020 DATA BARBARA,SANDRA,CHUCK,PAULA
5030 DATA SHERRY,JIMMY,PATRICIA
5040 DATA HANNAH,KERRIE,BLOSSOM
5050 REM IF YOU CHANGE THE 10 NAMES
5060 REM IN LINES 5020 - 5040 BE
5070 REM SURE TO USE NAMES THAT
```

```
5080 REM CONTAIN AT LEAST 2 LETTERS
5090 REM THAT ARE THE SAME FOR
5100 REM PROPER PROGRAM FUNCTION
```

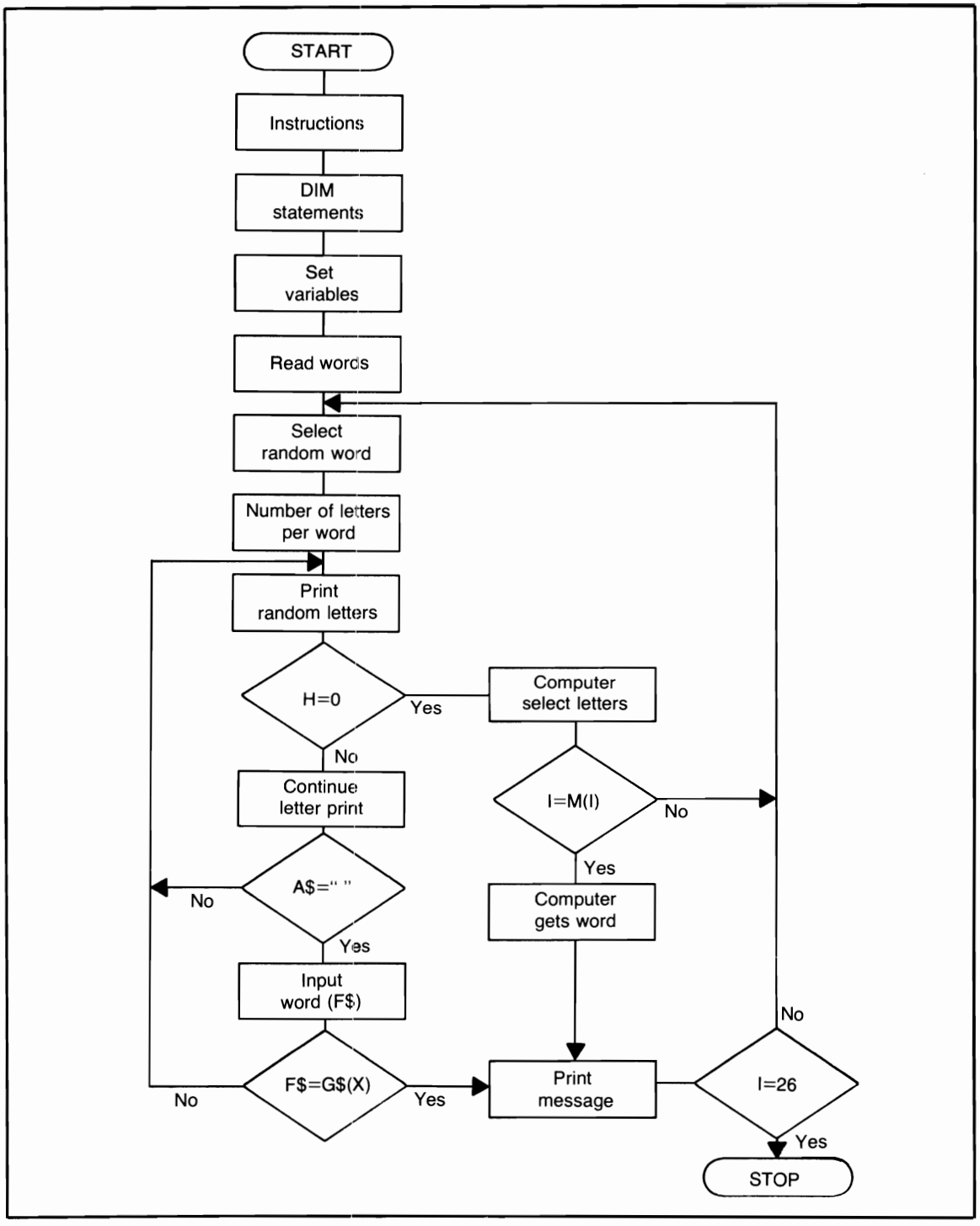
FINISH THE LETTERS



Can you spell better or faster than your computer? You'll find out when you play this game! You must figure out each word quickly, because each time the computer goes through the alphabet, both you and your computer will lose a point. Think fast!!!

Sample Run

```
        FINISH THE LETTERS (ALPHABET)

SEE THE INSTRUCTIONS? YES

THIS PROGRAM WILL TEST YOUR
ABILITY TO FINISH A WORD THAT
THE COMPUTER SELECTS AT RANDOM
FROM A DATA LIST OF 25 WORDS.
THE COMPUTER WILL PRINT THE
ALPHABET, THEN REPLACE EACH LETTER
WITH RANDOMLY SELECTED LETTERS.
IF A LETTER SELECTED MATCHES A
LETTER IN THE WORD, THAT LETTER
WILL BE REPLACED IN A LINE BELOW
THE ALPHABET LINE IN ITS CORRECT
PLACE WITHIN THE WORD, ALONG WITH
THE NUMBER OF LETTERS IN THE
PRESELECTED WORD.

PRESS ENTER?
```



Flowchart for *Finish the Letters*

```
THE COMPUTER WILL CONTINUE TO
SELECT LETTERS UNTIL IT COMPLETES
THE CURRENT WORD, OR YOU PRESS THE
SPACE BAR AND COMPLETE THE WORD.
POINTS WILL BE DETERMINED AS FOLLOWS:
WITH EACH PASS THROUGH THE
ALPHABET, BOTH YOU AND THE COMPUTER
WILL LOSE ONE POINT. IF YOU GUESS
THE WORD BEFORE THE COMPUTER
COMPLETES IT, PRESS THE SPACE BAR
AND ENTER THE ENTIRE WORD.

PRESS ENTER?

IF YOU ARE CORRECT AND THERE WERE
THREE OR FEWER LETTERS PRINTED
BEFORE YOU PRESSED THE SPACE BAR
YOU WILL RECEIVE TWO POINTS FOR
EACH LETTER IN THAT WORD.
OTHERWISE YOU'LL JUST RECEIVE ONE
POINT FOR EACH LETTER THAT WASN'T
PRINTED IN THE WORD.

IF YOU ENTER AN INCORRECT WORD
YOUR SCORE WILL BE REDUCED BY ONE
POINT FOR EACH LETTER IN THE
SELECTED WORD.

PRESS ENTER?

THE COMPUTER WILL RECEIVE ONE
POINT FOR EACH LETTER IT PRINTS
IN THE CURRENT WORD AND WILL
RECEIVE DOUBLE POINTS IF IT
COMPLETES A WORD BEFORE YOU DO.
THE PROGRAM WILL END
AFTER ALL 25 WORDS HAVE BEEN
USED.

PRESS ENTER TO BEGIN?
```

Program Listing

```
10 REM PROGRAM TITLE: FINISH THE
20 REM LETTERS (ALPHABET)
25 CLEAR 500:CLS:C=0:A1=69:A2=99:RANDOM
26 GOSUB1500:GOSUB900
30 DIM W(25),L$(26),J(26)
32 DIM M(26),W$(26),G$(26)
35 FOR I=1TO25:W(I)=I:NEXT
40 FOR I=1TO26
50 J(I)=I:READ L$(I):NEXT
55 FOR I=1TO25:READ W$(I):NEXT
56 GOSUB60:GOTO70
58 REM SELECT RANDOM WORD
60 X=RND(25):IF W(X)=0 THEN 60
62 G$(X)=W$(X)
64 REM NUMBER OF LETTERS PER WORD
65 FOR I=1TO LEN(G$(X)):M(I)=I:NEXT
68 RETURN
70 L=205:I=1:M=1
80 PRINT@L,CHR$(95);
90 IF M<=25 THEN 110
95 IF F=1 F=0:GOTO175
100 GOTO120
110 M=M+1:L=L+1:GOTO80
120 L=205:I=1:M=1
130 PRINT@L,L$(I);
135 A$=INKEY$
140 IF M<=25 THEN 160
150 F=1:GOTO70
160 M=M+1:L=L+1:I=I+1
165 FOR T=1TO15:NEXT
166 IF A$=" " THEN 500
170 GOTO130
175 IF U=1 U1=750:GOSUB810
180 L=205:M=1:RN=LEN(G$(X))
182 REM LETTER SELECTION
185 Y=RND(RN):IF M(Y)=0 THEN 185
190 I=RND(26):IF M=26 AND H=1 THEN 390
192 PRINT@A1+18,C;:PRINT@A2+12,CC;
194 IF J(I)=0 THEN 190
195 IF I=Y THEN 300
200 PRINT@L,L$(I);:FOR T=1TO15:NEXT
205 A$=INKEY$
```

```
210 IF M<=25 THEN 230
220 FOR T=1TO50:NEXT:GOTO250
230 M=M+1:L=L+1
235 IF A$=" " THEN 500
240 J(I)=0
245 IF H<>1 THEN 185 ELSE 190
250 FOR I=1TO26
260 J(I)=I:NEXT
270 IF U=1 C=C-1:CC=CC-1
280 GOTO70
300 IF U=0 THEN 320
310 IF H=0 C=C+1
315 IF U=1 THEN 365
320 E=278:E1=1:Q=1:P=E-1
330 PRINT@E,CHR$(95);
340 IF E1<>RN THEN 360
350 U=1:C=C+1:GOSUB425:GOTO365
360 E=E+1:E1=E1+1:GOTO330
365 A$=INKEY$
370 PRINT@P+Y,MID$(G$(X),Y,1);
372 D=LEN(MID$(G$(X),Y,1))+D
373 IF D=1 FG=1
375 IF Q=RN THEN H=1:GOTO190
380 M(Y)=0:Q=Q+1
385 IF A$=" " THEN 500 ELSE 200
390 FOR I=1TO26
400 IF M(I)<>0 THEN I=M(I):GOTO430
410 NEXT
420 GOTO440
425 PRINT@P+123,"THE WORD HAS";RN;"LETTERS.":FG=0:
    RETURN
430 PRINT@L,L$(I);
435 C=C+(RN*2):PRINT@A1+18,C;:U1=1500:GOSUB740
440 W(X)=0:C1=0:D=0
445 FOR I=1TO25:IF W(I)<>0 THEN450 ELSE NEXT:GOTO700
450 GOSUB60:H=0:U=0
460 FOR I=1TO26
470 J(I)=I:NEXT
480 PRINT@P,"          "
490 GOTO70
500 REM WORD INPUT
505 IF P=0 P=274
508 IF RN=0 THEN 130
510 PRINT@P+55,;
```

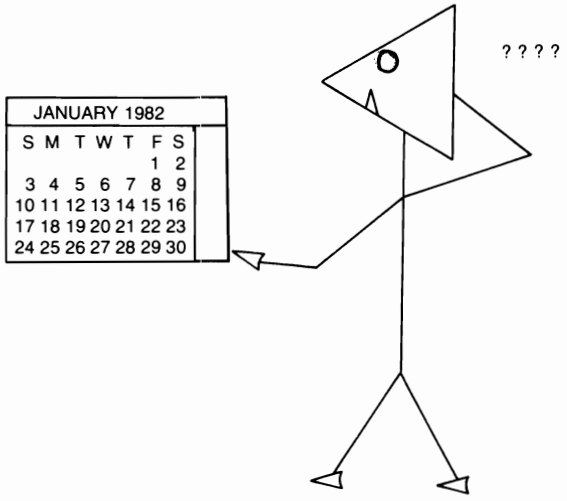
```
520 INPUT"ENTER THE COMPLETE WORD";F$
530 IF F$<>G$(X) THEN 550
540 GOTO600
550 PRINT@P+130,"SORRY !!!"
560 FOR TT=1TO1000:NEXT
570 PRINT@P+55,;
575 PRINT"                                "
580 PRINT@P+130,
582 IF JK=1 JK=0:GOTO440
583 REM DEDUCTION POINTS
585 C1=RN+C1:CC=CC-C1
590 PRINT@A2+12,CC;
595 GOTO200
600 REM USERS POINTS
610 PRINT@P+130,"CORRECT !!!"
620 IF D<=3 THEN CC=(RN*2)+CC:GOTO650
630 REM POINT PER LETTER REMAINING
640 CC=ABS(RN-D)+CC
650 PRINT@A2+12,CC;
660 REM ANOTHER WORD
670 JK=1
680 GOTO560
700 REM END OF WORD LIST
710 PRINT@P+120,;
720 PRINT"END OF WORD LIST..."
730 GOTO1200
740 REM COMPUTER POINTS
750 PRINT@P+55,;
760 PRINT"COMPUTER HAS COMPLETED THE WORD."
770 FOR TT=1TOU1:NEXT
780 PRINT@P+55,;
790 PRINT"                                "
800 RETURN
810 REM PRINT OUT FOR POINT LOSS
820 PRINT@P+58,;
830 PRINT"ONE POINT DEDUCTION..."
840 GOTO770
900 REM TOTAL PRINTOUTS
905 PRINT@(A1-64),;
906 PRINT"PRESS 'SPACE BAR' WHEN YOU KNOW THE
    COMPLETE WORD."
910 PRINT@A1,"COMPUTER'S TOTAL =";C;
920 PRINT@A2,"YOUR TOTAL =";CC;
930 RETURN
```

```
1000 DATA A,B,C,D,E,F,G,H,I,J,K
1010 DATA L,M,N,O,P,Q,R,S,T,U,V
1020 DATA W,X,Y,Z
1030 DATA TOGETHER,AUTOMATION,DIFFERENCE
1040 DATA CONSIGNMENT,WHEREAS,AFTERWARDS
1050 DATA OBNOXIOUS,PLANKTON,ALLOWABLE
1060 DATA ELECTRIC,POSTURE,TORNADO
1070 DATA MYTHOLOGY,SIMULATION,LAMP
1080 DATA FINANCE,STRIDE,WORLD,YOUNG
1090 DATA NEGOTIATE,GERMINATE,ADVOCATE
1100 DATA CANDLE,INFORMATIVE,SUGGEST
1200 REM COMPARE TOTAL POINTS
1210 FOR TT=1TO1500:NEXT
1220 PRINT
1230 PRINT"TOTAL POINTS:"
1240 PRINT"COMPUTER =";C
1250 PRINT"YOURS =";CC
1260 IF C>CC THEN 1310
1270 IF C<CC THEN 1340
1280 PRINT"YOU HAVE TIED WITH THE"
1290 PRINT"COMPUTER..."
1300 GOTO1360:REM END
1310 PRINT"THE COMPUTER HAS OUT-SMARTED YOU !!"
1330 GOTO1360:REM END
1340 PRINT"YOU HAVE SUCCESSFULLY BEATEN"
1350 PRINT"YOUR COMPUTER IN SPELLING !!!"
1360 PRINT
1370 PRINT"END OF PROGRAM RUN....."
1380 END
1500 REM INSTRUCTIONS
1510 PRINT TAB(10);"FINISH THE LETTERS ";
1520 PRINT"(ALPHABET)"
1530 PRINT
1540 INPUT"SEE THE INSTRUCTIONS";Q$
1550 IF Q$="NO" CLS:RETURN
1560 IF Q$="YES" THEN 1600
1570 PRINT"DON'T STALL THE PROGRAM, JUST"
1580 PRINT"ANSWER YES OR NO !!!"
1590 GOTO1530
1600 PRINT"THIS PROGRAM WILL TEST YOUR"
1610 PRINT"ABILITY TO FINISH A WORD THAT"
1620 PRINT"THE COMPUTER SELECTS AT RANDOM"
1630 PRINT"FROM THE DATA LIST OF 25 WORDS."
1640 PRINT"THE COMPUTER WILL PRINT THE"
```

```
1650 PRINT"ALPHABET, THEN REPLACE EACH LETTER"
1660 PRINT"WITH RANDOMLY SELECTED LETTERS."
1670 PRINT"IF A LETTER SELECTED MATCHES A"
1680 PRINT"LETTER IN THE WORD, THAT LETTER"
1690 PRINT"WILL BE PLACED IN A LINE BELOW"
1700 PRINT"THE ALPHABET LINE IN ITS CORRECT"
1710 PRINT"PLACE WITHIN THE WORD, ALONG WITH"
1720 PRINT"THE NUMBER OF LETTERS IN THE"
1730 PRINT"PRESELECTED WORD."
1750 INPUT"PRESS ENTER";XX
1760 CLS
1770 PRINT"THE COMPUTER WILL CONTINUE TO"
1780 PRINT"SELECT LETTERS UNTIL IT COMPLETES"
1790 PRINT"THE CURRENT WORD, OR YOU PRESS THE"
1795 PRINT"SPACE BAR AND COMPLETE THE WORD."
1800 PRINT"POINTS WILL BE DETERMINED AS
     FOLLOWS:"
1810 PRINT"WITH EACH PASS THROUGH THE"
1820 PRINT"ALPHABET, BOTH YOU AND THE COMPUTER"
1830 PRINT"WILL LOSE ONE POINT. IF YOU GUESS"
1840 PRINT"THE WORD BEFORE THE COMPUTER"
1850 PRINT"COMPLETES IT, PRESS THE SPACE BAR"
1860 PRINT"AND ENTER THE ENTIRE WORD."
1865 INPUT"PRESS ENTER";XX:CLS
1870 PRINT"IF YOU ARE CORRECT AND THERE WERE"
1880 PRINT"THREE OR FEWER LETTERS PRINTED"
1890 PRINT"BEFORE YOU PRESSED THE SPACE BAR"
1900 PRINT"YOU WILL RECEIVE TWO POINTS FOR"
1910 PRINT"EACH LETTER IN THAT WORD."
1920 PRINT"OTHERWISE YOU'LL JUST RECEIVE ONE"
1930 PRINT"POINT FOR EACH LETTER THAT WASN'T"
1940 PRINT"PRINTED IN THE WORD."
1950 PRINT"IF YOU ENTER AN INCORRECT WORD"
1960 PRINT"YOU SCORE WILL BE REDUCED BY ONE"
1970 PRINT"POINT FOR EACH LETTER IN THE"
1980 PRINT"SELECTED WORD."
1985 INPUT"PRESS ENTER";XX:CLS
1990 PRINT"THE COMPUTER WILL RECEIVE ONE"
2000 PRINT"POINT FOR EACH LETTER IT PRINTS"
2010 PRINT"IN THE CURRENT WORD AND WILL"
2020 PRINT"RECEIVE DOUBLE POINTS IF IT"
2030 PRINT"COMPLETES A WORD BEFORE YOU DO."
2040 PRINT"THE PROGRAM WILL END"
2050 PRINT"AFTER ALL 25 WORDS"
2060 PRINT"HAVE BEEN USED."
```

```
2065 PRINT
2080 INPUT"PRESS ENTER TO BEGIN";XX
2090 CLS
2100 RETURN
```

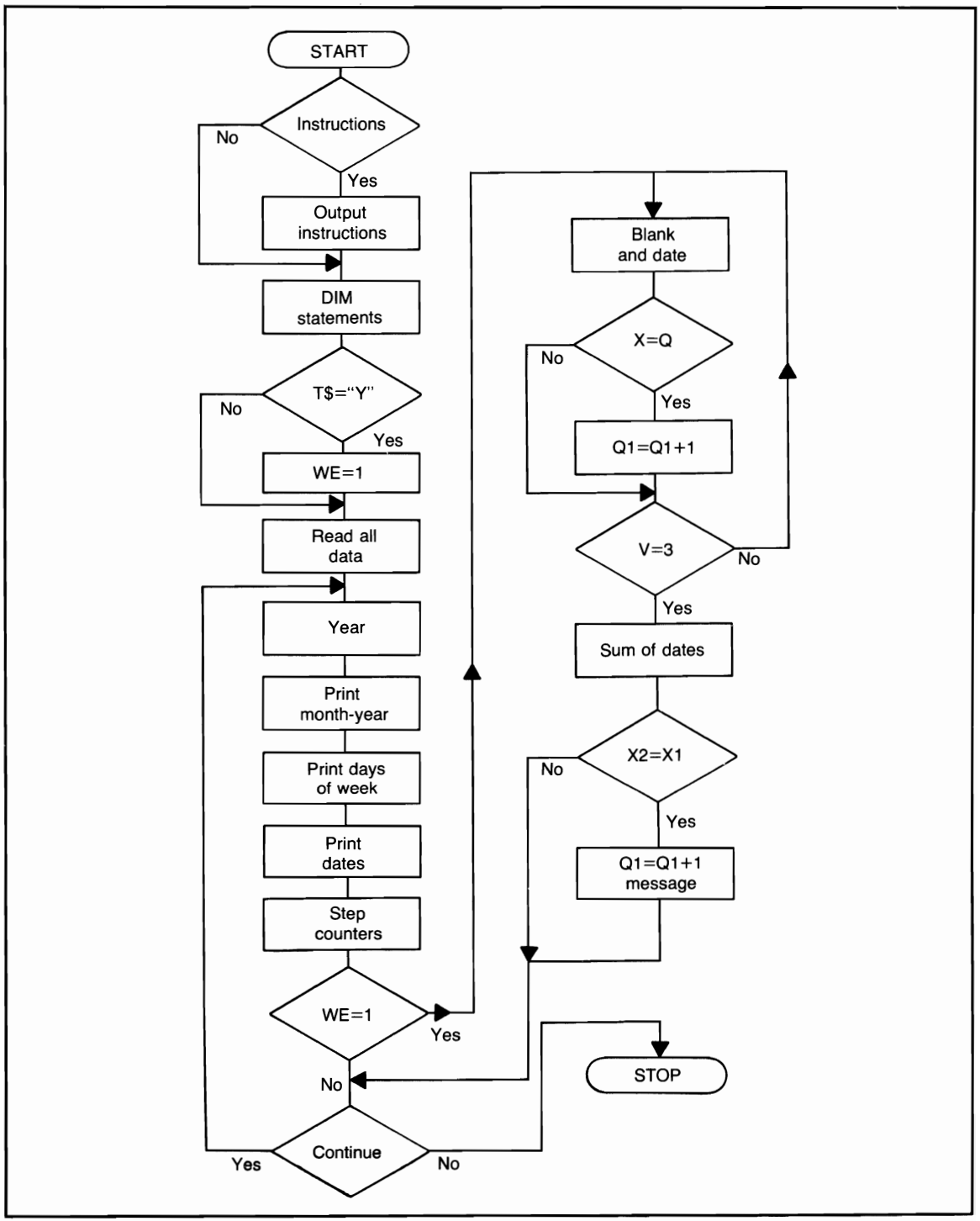
CALENDAR



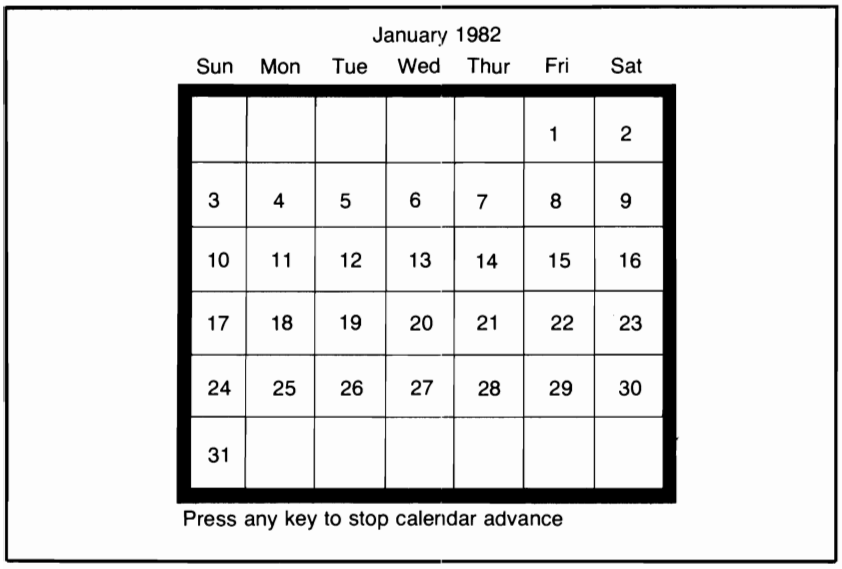
Do you want your youngsters to read a calendar, but they don't seem to have the patience or time? Turn a chore into a game with the help of this program. You can use it either as an ordinary calendar or as a teaching tool. Your child can learn everything from the months to the days of the week (including dates). He or she can also get some practice in doing addition.

Sample Run

```
:::: CALENDAR ::::


DO YOU NEED THE INSTRUCTIONS? YES

EVERYONE USES CALENDARS, RIGHT?
WELL IF YOU NEVER HAVE, NOW IS YOUR
CHANCE TO START.
IF YOU WISH, YOUR YOUNGER
CHILDREN CAN SHARPEN THEIR MEMORY
OF THE DAYS OF THE WEEK AND OF
ADDITION. PRESS ENTER AND FOLLOW
ALL THE COMPUTER'S INSTRUCTIONS?

USE AS AN ORDINARY CALENDAR? YES
```



Flowchart for *Calendar*


January 1982
Sun Mon Tue Wed Thur Fri Sat
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
Press any key to stop calendar advance

Program Listing

```
10 REM PROGRAM TITLE: CALENDAR
20 CLS:B=2
30 PRINT TAB(15);":::: CALENDAR ::::"
40 PRINT
50 INPUT"DO YOU NEED THE INSTRUCTIONS";I$
60 IF I$="NO" OR I$="N" THEN 170
70 PRINT
80 PRINT"EVERYONE USES CALENDARS, RIGHT?"
90 PRINT"WELL IF YOU NEVER HAVE, NOW IS"
100 PRINT"YOUR CHANCE TO START."
110 PRINT"IF YOU WISH, YOUR YOUNGER"
120 PRINT"CHILDREN CAN SHARPEN THEIR MEMORY,"
130 PRINT"OF THE DAYS OF THE WEEK AND OF
    ADDITION."
140 PRINT"PRESS ENTER AND FOLLOW ALL THE"
150 PRINT"COMPUTER'S INSTRUCTIONS";
160 INPUT X$
170 DIM M$(12),D(32)
180 DIM D$(12),X(32),L$(32)
220 CLS
230 REM THIS CALENDAR PROGRAM IS
240 REM SET UP TO START IN
250 REM THE YEAR 1982
260 INPUT"USE AS AN ORDINARY CALENDAR";T$
270 IF T$="Y" OR T$="YES" THEN WE=1
```

```
280 REM READ DATA
290 V=1:CLS:REM DAYS OF WEEK
300 FOR I=1TO7
310 READ D$(I):NEXT
320 REM MONTHS
330 FOR I=1TO12
340 READ M$(I):NEXT:YY=1982
350 REM NUMBER OF DAYS PER MONTH
360 FOR I=1TO12
370 READ D(I):NEXT
380 I=1:J=1:C=6:GOSUB900
390 PRINT@20,M$(I);:PRINT@40,YY;
395 IF I>=2 AND MA=1 THEN 560
400 T=70
410 PRINT@T,D$(J);
420 T=T+8:J=J+1
430 IF J<=7 GOTO410
450 Y=7
460 FOR X=10TO115
470 SET(X,Y):NEXT
480 Y=Y+6
490 IF Y<>49 THEN 460
500 X=10
510 FOR Y=7TO43
520 SET(X,Y):NEXT
530 X=X+15
540 IF X=130 THEN 560
550 GOTO510
560 IF B<=0 B=7
570 M=B:MA=1:BB=B:GOTO800
575 FOR D=1TOD(I)
580 PRINT@A,D;:X(D)=A
585 L$(D)=D$(C):A=A+7.4:B=B-1:C=C+1
586 IF B<=0 B=7
590 IF D=M THEN 610
600 NEXT:GOTO630
610 A=A+76:M=M+7:C=1:B=7
620 GOTO600
630 REM RECYCLE
640 GOSUB1110:GOSUB1000
650 IF I=12 THEN 700
660 I=I+1:J=1
670 GOTO390
700 REM YEAR ADVANCE
```

```
710 YY=YY+1
720 GOTO1940
730 M=B
740 GOTO380
800 REM PRINT AREAS
805 IF M=1 A=244
810 IF M=2 A=238
815 IF M=3 A=230
820 IF M=4 A=222
825 IF M=5 A=215
830 IF M=6 A=208
835 IF M=7 A=200
840 AA=A:GOTO575
900 PRINT@972,"PRESS ANY KEY TO ";
910 PRINT"STOP CALENDAR ADVANCE";
920 RETURN
930 PRINT@980,;
940 RETURN
950 PRINT@980,;
960 PRINT"                              ";
962 PRINT@972,"      ";
965 IF TT=1 TT=0:RETURN
970 FOR U=1TO1500:NEXT
980 RETURN
1000 REM CLEAR CURRENT CALENDAR
1010 A=AA:M=BB
1020 FOR D=1TOD(I)
1030 PRINT@A,"  ";:A=A+7,4
1040 IF D=M THEN 1060
1050 NEXT:GOTO1080
1060 A=A+76:M=M+7
1070 GOTO1050
1080 PRINT@20,"          ";
1090 PRINT@40,"    ";
1095 IF D(2)=29 PRINT@A,"  ";
1100 RETURN
1110 REM KEY CLOSURE
1120 FOR U=1TO250
1130 A$=INKEY$
1140 IF A$="" THEN 1160
1150 IF WE<>1 GOTO1170 ELSE 1700
1160 NEXT:RETURN
1170 Q=RND(D(I)-1):IF Q<=0 THEN 1170
1180 PRINT@X(Q),"  ";
```

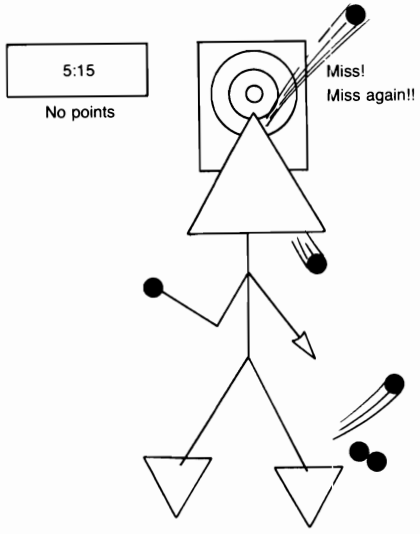
```
1190 J(V)=Q:TT=1:GOSUB950
1200 GOSUB930:X=0:XX=0
1210 PRINT"THE MISSING DATE ?";
1220 X$=INKEY$:IF X$="" THEN 1220
1230 X=VAL(X$)+XX
1240 IF K=1 K=0:GOTO 1270
1250 IF Q<=9 THEN 1270
1260 XX=X*10:K=1:GOTO1220
1270 REM CORRECT ?
1280 GOSUB930
1290 IF X=Q THEN Q1=Q1+1:GOTO1320
1300 PRINT"YOU ARE INCORRECT !!! ";
1310 GOTO1330
1320 PRINT"THAT IS CORRECT !!!  ";
1330 IF MJ=1 MJ=0:GOTO1430
1335 PRINT@X(Q),Q;
1340 GOSUB970:GOSUB950
1350 GOTO1800
1355 IF V=3 THEN 1500 ELSE IF V=6 THEN 1500
1360 IF V<=5 THEN 1170
1370 GOSUB970:CLS
1380 PRINT"OUT OF";V+3;"YOU CORRECTLY"
1390 PRINT"ANSWERED";:Q4=Q1+Q2+Q3
1395 PRINT Q4;"....."
1400 GOTO2100
1410 CLS:Q1=0:Q2=0:Q3=0:Q4=0:V=1:MA=0
1420 GOTO650
1430 GOSUB970
1440 V=V+1:GOTO1355
1500 REM SUM OF 2
1510 X1=J(V-2)+J(V-1):MJ=1
1520 GOSUB950:VV=V-1
1530 PRINT@972,;
1540 PRINT"ENTER THE SUM OF THE DATES";
1545 PRINT VV-1;"AND";VV;" ?";
1550 X$=INKEY$:IF X$="" THEN 1550
1560 X2=VAL(X$)+X3:X3=0
1570 IF K=1 K=0:GOTO 1600
1580 IF X1<=9 THEN 1600
1590 X3=X2*10:K=1:GOTO1550
1600 TT=1:GOSUB950
1605 GOSUB930
1610 IF X2<>X1 THEN 1300
1620 Q2=Q2+1:GOTO1320
```

```
1700 GOSUB950
1710 GOSUB930
1720 PRINT"PRESS ANY KEY TO CONTINUE ?";
1730 X$=INKEY$
1740 IF X$="" THEN 1730
1750 GOSUB900
1760 RETURN
1800 REM WHAT DAY OF WEEK
1810 F$="":TT=1:ZZ=1:GOSUB950
1820 PRINT@975,;
1830 PRINT"THAT DATE OCCURS ON WHICH DAY ?";
1840 I$=INKEY$
1850 IF I$="" THEN 1840
1860 F$=F$+I$
1870 PRINT@1007,MID$(F$,1,ZZ);
1880 IF ZZ<>LEN(L$(Q)) THEN 1900
1890 TT=1:GOSUB950:GOTO1910
1900 ZZ=ZZ+1:GOTO1840
1910 GOSUB930:MJ=1
1920 IF F$<>L$(Q) THEN 1300
1930 Q3=Q3+1:GOTO1320
1940 REM LEAP YEAR ?
1950 IF YY/4=INT(YY/4) THEN 1970
1960 D(2)=28:GOTO1980
1970 D(2)=29
1980 GOTO730
2000 REM DATA LINES
2010 DATA SUN,MON,TUE,WED,THUR,FRI,SAT
2020 DATA JANUARY,FEBRUARY,MARCH,APRIL
2030 DATA MAY,JUNE,JULY,AUGUST
2040 DATA SEPTEMBER,OCTOBER,NOVEMBER
2050 DATA DECEMBER
2060 DATA 31,28,31,30,31,30
2070 DATA 31,31,30,31,30,31
2100 REM CONT -- END
2110 PRINT"YOU HAVE";Q1;
2120 PRINT"DATES CORRECT."
2130 PRINT"YOU ADDED";Q2;"DATES CORRECTLY."
2150 PRINT"YOU NAMED";Q3;"DAYS OF THE"
2160 PRINT"WEEK CORRECTLY."
2165 IF Q4=10 PRINT"A PERFECT SCORE !!!"
2170 PRINT
2180 PRINT"PRESS ENTER TO CONTINUE."
```

```
2190 PRINT"PRESS BREAK TO STOP."
2200 INPUT X
2210 GOTO1410
```

Time- and Mind-Challenging Games

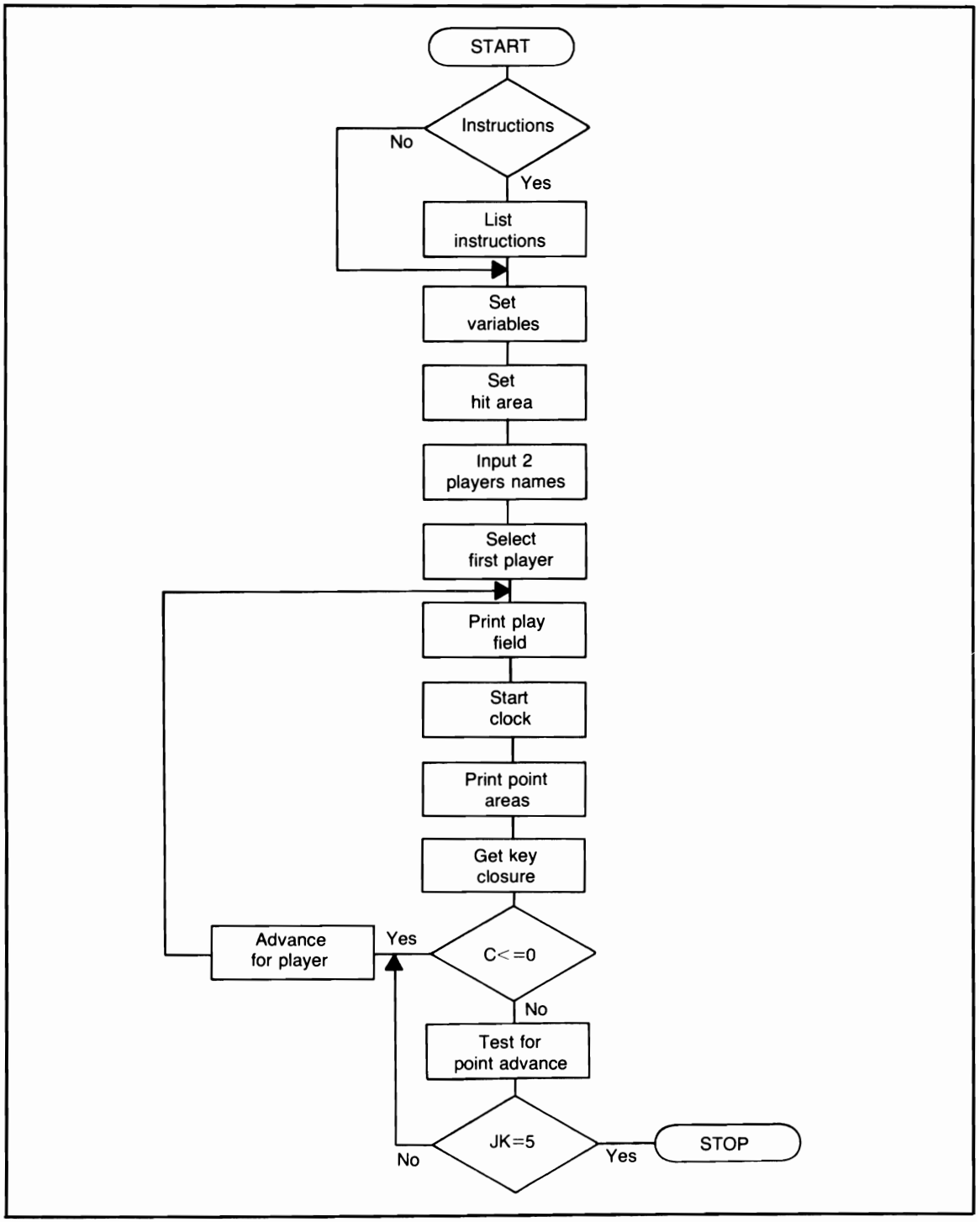
CLOCKWORK



So you think you have mastered every game on the market? Wait 'til you try this one! You'll be trying to beat a clock (60 seconds and the computer takes the first shot) to get enough points to beat your opponent. When you think you're all set, the ceiling will drop and the targets will move!

Sample Run

```
                C L O C K W O R K

INSTRUCTIONS (Y/N)? Y

THIS PROGRAM REQUIRES
TWO PLAYERS. YOU AND
ONE OTHER PLAYER WILL TRY
TO BEAT THE CLOCK TO GAIN AS
MANY POINTS AS POSSIBLE. BY
HITTING VARIOUS TARGETS. EACH
OF YOU WILL HAVE 2 TURNS (ALTER-
```



Flowchart for *Clockwork*

NATING). YOU WILL EACH BE ALLOWED
ONE MINUTE FOR EACH TURN.
AS THE GRAPHICS ARE SET UP YOU
WILL NOTICE A CLOCK IN THE UPPER
LEFT-HAND CORNER. TO THE RIGHT
WILL BE YOUR SCORE.

PRESS ENTER?

THE CURRENT PLAYER'S NAME WILL
BE PRINTED IN THE LOWER RIGHT-
HAND CORNER.
AFTER ALL GRAPHICS ARE SET UP
THE COMPUTER WILL PRINT 'PRESS
ANY KEY TO START'. AFTER
YOU PRESS A KEY, THE COMPUTER
WILL FIRE A PROJECTILE. IT WILL
GO UP, BOUNCE OFF THE CEILING,
AND THEN HIT ONE OF THREE POINT
AREAS (500, 200, or 50) AT THIS
POINT THE CEILING WILL BE LOWERED
AND THE THREE POINT AREAS WILL
BE MOVED TO THE LEFT.

PRESS ENTER?

NOW TRY TO AIM YOUR SHOT.
PRESS THE UP ARROW KEY
TO MOVE THE LIGHTED BLOCK UP
(TO MAKE IT FALL SHORTER), OR PRESS
THE '/' KEY TO MOVE IT TO THE
RIGHT (TO MAKE IT GO
FARTHER). TO FIRE JUST PRESS
THE SPACE BAR AT ANY TIME.
YOU WILL RECEIVE THE NUMBER OF
POINTS INDICATED BY THE NUMERAL
YOU HIT (IF ANY). EACH OF YOU
WILL HAVE A CHANCE TO HIT THE
NUMERALS. THEN THE GRAPHICS WILL

PRESS ENTER?

BE RESET, THIS TIME USING 'ASTERISKS'
AS TARGETS. YOU WILL REPEAT THE

PROCEDURE. EACH DIRECT HIT ON AN ASTERISK WILL COUNT 1000 POINTS. AFTER BOTH OF YOU PLAY A ROUND, THE COMPUTER WILL PRINT THE WINNER...

BEGIN NOW...PRESS ENTER?

INPUT THE FIRST NAMES OF BOTH PLAYERS? CANDY
??APPLE

Program Listing

```
10 REM PROGRAM TITLE: CLOCKWORK
15 GOSUB2500
20 CLS:Q=64:XX=6:JK=1
30 GOSUB40:GOTO200
40 A=927
50 FOR I=1TO3
60 A(I)=A:IF I>=2 THEN 100
70 A(I+3)=A-427
80 A(I+4)=A-727
90 A(I+5)=A-877
100 A=A+5:NEXT
110 REM HIT AREA
120 A1=64:A2=70:A3=74:A4=80
130 A5=83:A6=88
140 RETURN
200 REM PLAYERS - POINTS - TURN
```

```
210 IF JK>=2 THEN 330
220 PRINT"INPUT THE FIRST NAMES OF"
230 INPUT"BOTH PLAYERS";X$,Y$
235 IF X$="" OR Y$="" THEN 220
240 IF ASC(X$)>=ASC(Y$) THEN 270
250 REM GOES FIRST
260 RN=1
270 CLS
280 GOSUB1200
290 GOTO330
300 REM PLAYING FIELD
310 PRINT@0," **   CLOCK   **";
320 PRINT@35," **    POINTS    **";
322 PRINT@Q+5,"SECONDS LEFT";
325 PRINT@944,"** PLAYER **";
326 RETURN
330 FOR X=0TO91:SET(X,XX)
340 SET(X,46):SET(X,47):NEXT
350 FOR Y=47TOXXSTEP-1
360 SET(91,Y):SET(92,Y)
370 SET(93,Y):NEXT
375 IF F=1 Y=45:RETURN
380 REM START CLOCK
385 X=0:Y=45
390 GOSUB300:GOSUB1100
395 GOSUB700
400 IF Y<=XX+1 THEN 455
405 GOTO900
410 RESET(X,Y):RESET(X+1,Y)
420 X=X+1:Y=Y-1
430 SET(X,Y):SET(X+1,Y)
440 FOR T=1TO5:NEXT
445 IF F=1 THEN C=C-.11
450 IF CC<=0 THEN 1800 ELSE 400
455 CC=INT(C)
460 RESET(X,Y):RESET(X+1,Y)
465 PRINT@Q,CC;
470 Y=Y+1:X=X+1
480 SET(X,Y):SET(X+1,Y)
485 IF F=1 THEN C=C-.11
490 IF Y>=45 GOSUB1500:GOTO510
495 IF C<=0 THEN 1800
500 GOTO455
510 GOSUB300
```

```
515 GOSUB1100
520 X=0:Y=45
525 SET(X,Y):SET(X+1,Y)
530 A$=INKEY$:IF C<=0 THEN 1800
535 IF F=1 THEN C=C-.08:PRINT@Q,CC;
540 CC=INT(C):REM IF A$="" THEN 530
550 IF A$=CHR$(91) THEN 570
555 IF A$=CHR$(47) THEN H=1:GOTO570
560 IF A$=" " THEN U=1:GOTO400
565 GOTO530
570 RESET(X,Y):RESET(X+1,Y)
571 IF Y<=XX THEN 640
575 IF H=1 H=0:GOTO600
580 X=X:Y=Y-1:GOTO525
600 REM MOVE RIGHT
610 IF X>=25 THEN 640
620 X=X+1:Y=Y
630 GOTO525
640 PRINT@880,"** LIMIT **";
650 FOR T=1TO775:NEXT
660 PRINT@880,"          ";
670 GOTO525
700 REM START
710 PRINT@256,;
720 PRINT"PRESS ANY KEY TO START";
730 W$=INKEY$
740 IF W$="" THEN 730
750 PRINT@256,;
760 PRINT"                    ";
770 RETURN
900 REM CLOCK COUNT
910 IF F=1 THEN 925
920 C=61:F=1
925 CC=INT(C)
930 PRINT@Q,CC;
960 IF C<=0 THEN 1800
970 GOTO410
980 REM VARIABLE C & CC ARE FOR CLOCK
1100 REM PRINT POINT AREAS
1110 FOR I=1TO3
1115 IF HK=1 THEN 1150
1120 PRINT@A(I),A(I+3);
1130 NEXT
1140 RETURN
```

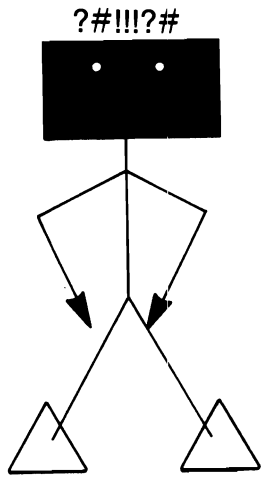
```
1150 POKE A1,AA
1160 POKE A2,AA
1170 POKE A3,AA
1180 GOTO1140
1200 REM PLAYER?
1210 IF RN=1 THEN 1250
1240 PRINT@1011,X$;:GOTO1260
1250 PRINT@1011,Y$;
1260 RETURN
1500 REM POINTS?
1510 IF CC>=1 THEN 1530
1520 RETURN
1530 IF POINT(X,Y+1) THEN 1545
1540 RESET(X,Y):RESET(X+1,Y):RETURN
1545 REM TO HIGHER POINT
1546 IF HK=1 THEN 2100
1550 IF X>=A5 AND X<=A6 THEN 1590
1560 IF X>=A3 AND X<=A4 THEN 1595
1570 IF X>=A1 AND X<=A2 THEN 1600
1580 GOTO1540
1590 P=P+A(6):GOTO1605
1595 P=P+A(5):GOTO1605
1600 P=P+A(4)
1605 IF A1<=4 RESET(X,Y):RESET(X+1,Y):GOTO1785
1610 A5=A3:A6=A4-1:A3=A1:A4=A2
1615 A1=A1-10:A2=A2-10
1620 PRINT@107,P;
1625 RESET(X,Y):RESET(X+1,Y)
1630 REM LOWER CEILING
1640 FOR X=0TO90
1650 RESET(X,XX):NEXT
1660 XX=XX+3
1670 IF XX>=24 XX=24
1680 FOR X=0TO90
1690 SET(X,XX):NEXT
1700 FOR Y=XX-1TOXX-3STEP-1
1710 RESET(91,Y):RESET(92,Y)
1720 RESET(93,Y):NEXT
1730 GOSUB350:IF HK=1 THEN 1780
1740 FOR I=1TO3
1745 IF MX=1 PRINT@A(I),"     ";
1750 PRINT@A(I),"  ";:NEXT
1755 IF MX=1 MX=0:RETURN
1760 FOR I=1TO3
```

```
1770 A(I)=A(I)-5:NEXT
1780 GOSUB1100:RETURN
1785 REM RESET POINT AREAS (BEGINNING)
1790 MX=1:GOSUB1740:GOSUB40:GOSUB1100
1795 RETURN
1800 REM TIME EXPIRED
1810 T=1
1820 PRINT@Q,;
1830 PRINT"** TIME EXPIRED **";
1840 FOR L=1TO200:NEXT
1850 PRINT@Q,;
1860 PRINT"                ";
1870 FOR L=1TO100:NEXT
1880 IF T<=5 THEN T=T+1:GOTO1820
1890 REM WHOSE TURN?
1900 REM POINTS
1910 JK=JK+1
1920 IF RN=1 P1=P1+P:RN=0:GOTO1930
1925 RN=1:P2=P2+P
1930 IF JK=5 THEN 2300
1935 IF JK=3 THEN 2000
1938 IF HK=1 THEN 2000
1940 CLS:GOSUB1200
1945 Q=64:XX=6:F=0:P=0
1950 GOTO30
2000 REM HIGHER POINT ROUNDS
2010 HK=1:AA=42
2020 A1=16297:A2=16292
2030 A3=16287
2040 A4=0:A5=0:A6=0
2050 REM PLAY
2055 IF BM=1 BM=0:GOTO2200
2060 CLS:GOSUB1200
2070 Q=64:XX=6:F=0:P=0
2080 GOTO290
2100 REM RECEIVE POINTS?
2105 RESET(X,Y):RESET(X+1,Y)
2110 IF PEEK(A1)<>AA THEN 2150
2120 IF PEEK(A2)<>AA THEN 2150
2130 IF PEEK(A3)<>AA THEN 2150
2140 GOTO1520:REM NO POINTS
2150 P=P+1000
2160 POKE A1,32:POKE A2,32
2170 POKE A3,32
```

```
2180 IF A3<=INT(AA*387.2) THEN BM=1
2185 IF BM=1 THEN 2020
2190 A1=A2:A2=A3:A3=A3-5
2200 REM CONT PLAY
2210 GOTO1620
2300 REM END / FINAL SCORE
2310 FOR TT=1TO1500:NEXT
2320 CLS:PRINTCHR$(23)
2330 IF P1=P2 THEN 2390
2340 IF P1>P2 THEN X$=Y$:P2=P1
2350 PRINT X$;" IS THE WINNER."
2360 PRINT"HAVING A TOTAL SCORE"
2370 PRINT"OF";P2;"POINTS..."
2380 GOTO2430
2390 PRINT"YOU HAVE FINISHED"
2400 PRINT"WITH A TIE SCORE..."
2410 PRINT Y$;"HAS";P1
2420 PRINT X$;"HAS";P2
2430 PRINT
2440 PRINT"END OF GAME..."
2450 END
2500 REM INSTRUCTIONS
2510 CLS
2520 PRINT TAB(15);"C L O C K W O R K"
2530 PRINT
2540 INPUT"INSTRUCTIONS (Y/N)";T$
2550 IF T$="N" RETURN
2560 PRINT"THIS PROGRAM REQUIRES"
2570 PRINT"TWO PLAYERS."
2580 PRINT"YOU AND ONE OTHER PLAYER WILL TRY"
2590 PRINT"TO BEAT THE CLOCK TO GAIN AS"
2600 PRINT"MANY POINTS AS POSSIBLE BY"
2610 PRINT"HITTING VARIOUS TARGETS. EACH"
2620 PRINT"OF YOU WILL HAVE 2 TURNS (ALTER-"
2630 PRINT"NATING), YOU WILL EACH BE ALLOWED"
2640 PRINT"ONE MINUTE FOR EACH TURN."
2650 PRINT"AS THE GRAPHICS ARE SET UP, YOU"
2660 PRINT"WILL NOTICE A CLOCK IN THE UPPER"
2670 PRINT"LEFT-HAND CORNER. TO THE RIGHT"
2680 PRINT"WILL BE YOUR SCORE."
2690 PRINT
2700 INPUT"PRESS ENTER";XX
2710 CLS
2720 PRINT"THE CURRENT PLAYER'S NAME WILL"
```

```
2730 PRINT"BE PRINTED IN THE LOWER RIGHT-"
2740 PRINT"HAND CORNER."
2750 PRINT"AFTER ALL GRAPHICS ARE SET UP"
2760 PRINT"THE COMPUTER WILL PRINT 'PRESS"
2770 PRINT"ANY KEY TO START'. AFTER"
2780 PRINT"YOU PRESS A KEY, THE COMPUTER"
2790 PRINT"WILL FIRE A PROJECTILE. IT WILL"
2800 PRINT"GO UP, BOUNCE OFF THE CEILING,"
2810 PRINT"AND THEN HIT ONE OF THE THREE POINT"
2820 PRINT"AREAS (500,200 OR 50). AT THIS"
2830 PRINT"TIME THE CEILING WILL BE LOWERED"
2840 PRINT"AND THE THREE POINT AREAS WILL"
2850 PRINT"BE MOVED TO THE LEFT."
2860 PRINT
2870 INPUT"PRESS ENTER";XX
2880 CLS
2890 PRINT"NOW, TRY TO AIM YOUR SHOT."
2910 PRINT"PRESS THE UP ARROW KEY"
2920 PRINT"TO MOVE THE LIGHTED BLOCK UP"
2930 PRINT"(TO MAKE IT FALL SHORTER) OR PRESS"
2940 PRINT"THE '/' KEY TO MOVE IT TO THE"
2950 PRINT"RIGHT (TO MAKE IT GO"
2960 PRINT"FARTHER). TO FIRE JUST"
2970 PRINT"PRESS THE SPACE BAR AT ANY TIME."
2980 PRINT"YOU WILL RECEIVE THE NUMBER OF"
2990 PRINT"POINTS INDICATED BY THE NUMERAL YOU
     HIT"
3000 PRINT"(IF ANY). EACH OF YOU WILL HAVE"
3010 PRINT"A CHANCE TO HIT THE NUMERALS."
3015 PRINT:INPUT"PRESS ENTER";XX:CLS
3017 PRINT"THEN THE GRAPHICS WILL BE"
3020 PRINT"RESET, THIS TIME USING 'ASTERISKS'"
3030 PRINT"AS TARGETS. YOU WILL REPEAT THE"
3040 PRINT"PROCEDURE, EACH DIRECT HIT ON AN"
3050 PRINT"ASTERISK WILL COUNT 1000 POINTS."
3060 PRINT"AFTER BOTH OF YOU PLAY A ROUND"
3070 PRINT"THE COMPUTER WILL PRINT THE"
3080 PRINT"WINNER..."
3090 PRINT
3100 INPUT"BEGIN NOW...PRESS ENTER";XX
3110 RETURN
```

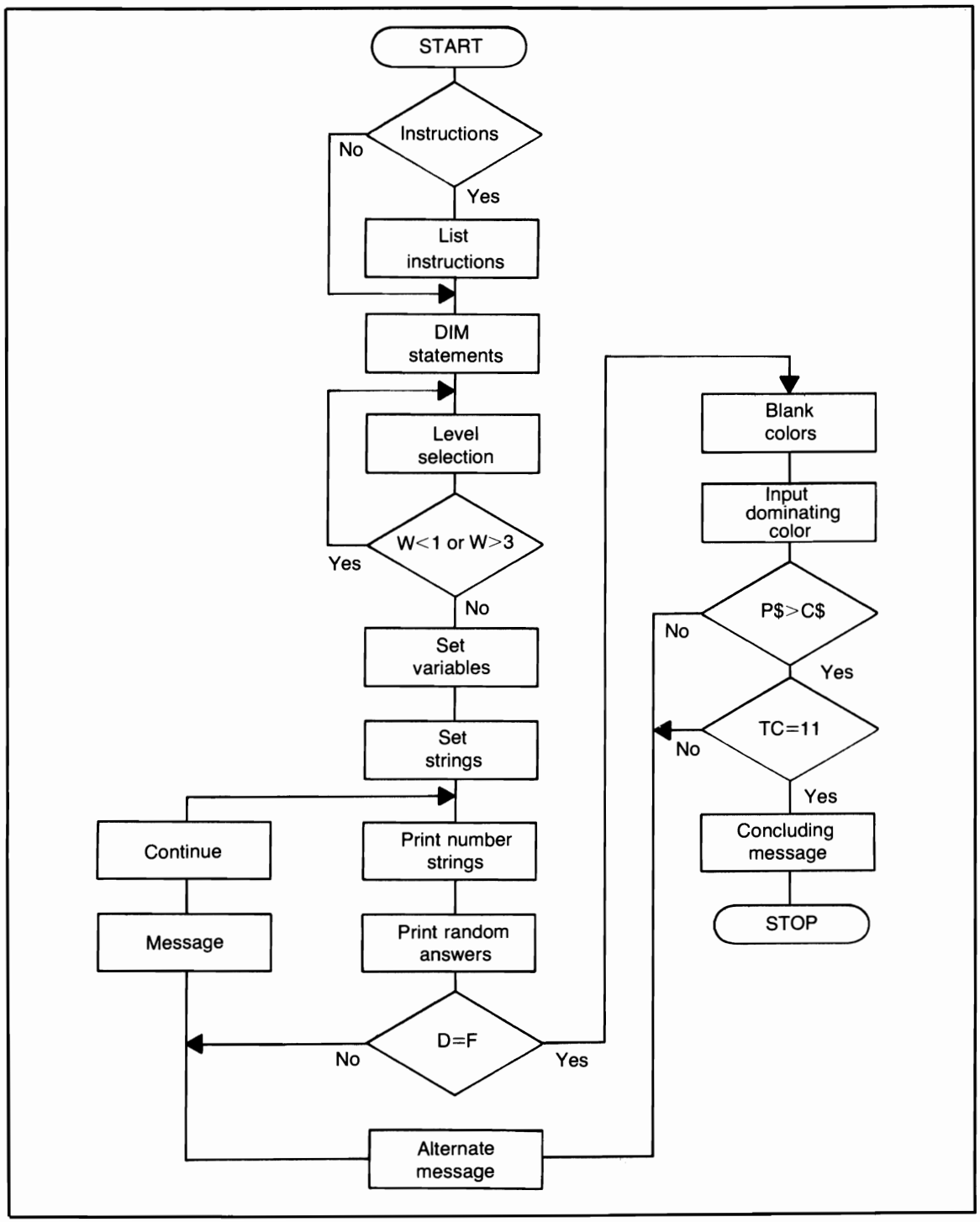
BLACKOUT



You must have a fast, sharp mind to play this game. You may choose from three difficulty levels, but even on level one you must be able to think fast. Oh yes, one other thing before you start—is your memory in good working order too???

Sample Run

```
          B L A C K O U T

INSTRUCTIONS REQUIRED? YES

THIS PROGRAM WILL TEST AND SCORE
YOUR ABILITY TO SOLVE ADDITION
PROBLEMS & REMEMBER COLORS.
LEVELS SELECTIONS ARE 1, 2, & 3.
THE ADDITION PROBLEMS WILL BE
PRINTED IN ROWS (LEFT TO RIGHT).
EACH ROW WILL CONTAIN 4 NUMERALS
TO BE ADDED TOGETHER.
TO THE RIGHT OF EACH NUMBER
YOU WILL SEE ONE OF 2 COLORS:
BLACK OR WHITE.

ENTER?

TO THE FAR RIGHT OF YOUR VIDEO
```



Flowchart for *Blackout*

WILL BE NUMBERS, THESE NUMBERS
ARE THE TOTALS TO THE ROWS, BUT
EACH NUMBER IS NOT NECESSARILY
THE TOTAL FOR THE ROW IT IS NEXT TO.
THE TOTALS ARE RANDOMLY ARRANGED.
DEPENDING ON THE LEVEL YOU SELECT
YOU WILL BE GIVEN A CERTAIN TIME LIMIT
TO ADD ALL 4 NUMBERS IN A ROW.
THE TOTAL BESIDE THE ROW WILL BE
BLACKED OUT. IF IT WAS THE

ENTER?

CORRECT ANSWER, PRESS
THE SPACE-BAR. THE COMPUTER
WILL BLACKOUT THE 4 COLORS
AND SEE IF IT WAS INDEED THE CORRECT TOTAL
IF THE TOTAL WAS CORRECT, YOU WILL
BE ASKED TO INPUT THE DOMINATING
COLOR IN THAT ROW (BLACK/WHITE OR
EQUAL – 2 BLACK + 2 WHITE). IF
YOU ARE CORRECT THAT ROW WILL
BE OMITTED; IF INCORRECT, THE
COLORS WILL BE REPRINTED IN THAT
ROW AND PLAY WILL RESUME

ENTER?

YOU MUST REMEMBER TWO VITAL
RULES:
1) ONLY PRESS THE SPACE BAR
AFTER THE TOTAL HAS BEEN BLACKED
OUT (ASSUMING IT IS THE RIGHT TOTAL).
IF THE TOTAL DOES NOT MATCH THE
ADDED NUMBERS IN THAT ROW, DO NOTHING!
2) REMEMBER THAT YOU WILL HAVE
A TIME LIMIT WITHIN WHICH TO ADD
THE NUMERALS, PRESS THE
SPACE BAR AND GUESS THE COLOR.
(THIS PROGRAM ALSO USES THE
INKEY$ FUNCTION.)

```
ENTER?

IF YOU START TO GUESS BY
PRESSING THE SPACE BAR FOR
EVERY ROW, YOU WILL ONLY DEFEAT
THE PURPOSE OF THE PROGRAM,
RECEIVE A WARNING FROM THE
COMPUTER, AND HAVE TO START OVER!!
THE PROGRAM ENDS WHEN YOU HAVE
ENTERED CORRECT TOTALS AND COLORS
FOR ALL 11 ROWS.
NOW YOU CAN FINALLY PRESS ENTER
TO BEGIN?

LEVEL SELECT (1, 2, OR 3)? 2

 22 WHITE    17 BLACK    20 BLACK    15 WHITE    75
  2 BLACK     6 BLACK    19 WHITE     3 WHITE    67
 26 WHITE    27 WHITE    19 WHITE    23 BLACK    29
 12 BLACK     7 WHITE     4 WHITE     6 BLACK    73
  4 WHITE    27 BLACK    13 WHITE    10 BLACK    70
  2 WHITE     5 WHITE     5 WHITE    25 BLACK    92
 13 WHITE    27 BLACK    26 BLACK    19 BLACK    54
 27 WHITE    27 WHITE    12 BLACK     9 WHITE    85
 12 BLACK    15 BLACK    16 BLACK    24 WHITE    30
 12 WHITE    30 BLACK    11 BLACK    20 BLACK    74
 14 BLACK     7 WHITE    25 WHITE    24 BLACK    37

///// STOP /////
```

Program Listing

```
10 REM PROGRAM TITLE: BLACKOUT
15 CLEAR 500:GOTO95
20 CLS
30 RANDOM
40 DIM A(12),A$(45),U(45),J(12)
45 DIM P(12),L(12),B(50),RE(12)
50 INPUT"LEVEL SELECT (1, 2, OR 3)";W
60 IF W<1 OR W>3 THEN 50
70 CLS
80 TY=0:TC=0:M=0
90 G=(W*45)+25
```

```
92 FOR I=1TO11:RE(I)=I:NEXT:RETURN
95 CLS
96 PRINT:PRINT:PRINT:PRINT:PRINT:PRINT
100 PRINT TAB(17);"B L A C K O U T"
105 FOR TT=1TO800:NEXT
110 CLS:PRINT
115 INPUT"INSTRUCTIONS REQUIRED";U$
120 IF U$="YES" THEN 150
125 IF U$="NO" THEN GOSUB20:GOTO300
130 PRINT"CUT THE FUNNY ANSWERS..."
135 PRINT"JUST ANSWER YES OR NO !!!"
140 PRINT:GOTO115
150 PRINT
155 PRINT"THIS PROGRAM WILL TEST AND SCORE"
160 PRINT"YOUR ABILITY TO SOLVE ADDITION"
165 PRINT"PROBLEMS & REMEMBER COLORS."
170 PRINT"LEVELS SELECTIONS ARE 1, 2, & 3."
175 PRINT"THE ADDITION PROBLEMS WILL BE"
180 PRINT"PRINTED IN ROWS (LEFT TO RIGHT)."
185 PRINT"EACH ROW WILL CONTAIN 4 NUMERALS"
190 PRINT"TO BE ADDED TOGETHER."
195 PRINT"TO THE RIGHT OF EACH NUMBER"
200 PRINT"YOU WILL SEE ONE OF 2 COLORS:"
205 PRINT"BLACK OR WHITE."
210 PRINT
215 INPUT"ENTER";Z
220 PRINT"TO THE FAR RIGHT OF YOUR VIDEO"
225 PRINT"WILL BE NUMBERS. THESE NUMBERS"
230 PRINT"ARE THE TOTALS TO THE ROWS, BUT"
235 PRINT"EACH NUMBER IS NOT NECESSARILY"
240 PRINT"THE TOTAL FOR THE ROW IT IS NEXT TO."
245 PRINT"THE TOTALS ARE RANDOMLY ARRANGED."
255 PRINT"DEPENDING ON THE LEVEL YOU SELECT,"
260 PRINT"YOU WILL BE GIVEN A CERTAIN TIME LIMIT"
265 PRINT"TO ADD ALL 4 NUMBERS IN A ROW."
270 PRINT"THE TOTAL BESIDE THE ROW WILL BE"
275 PRINT"BLACKED OUT. IF IT WAS THE"
280 PRINT
285 INPUT"ENTER";X
290 GOTO1800
300 W$="WHITE"
310 B$="BLACK"
315 IF IT=1 IT=0:CLS
320 T=1:M=0:L=5:P=1:Z=50:A1=0:A2=0
```

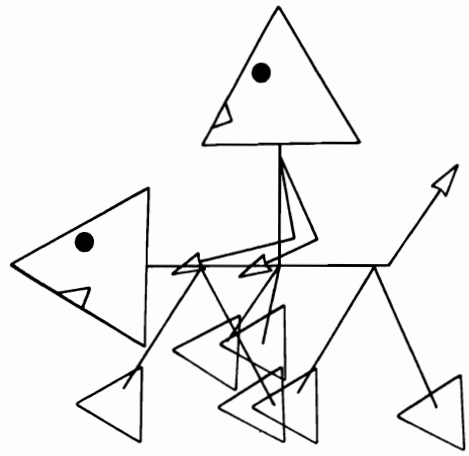
```
330 I=RND(2)
335 R=RND((W)*15)
340 IF I=1 THEN 385
345 PRINT@(L-4),R;
350 PRINT@L,B$;:A$(T)=B$
360 IF L=Z THEN L=L+4:GOTO410
370 U(T)=R+U(T):T=T+1:L=L+15
380 GOTO330
385 PRINT@(L-4),R;
390 PRINT@L,W$;:A$(T)=W$
400 GOTO360
410 REM LINE ADVANCE
420 A(P)=Z+10:Z=Z+64:P=P+1
430 IF Z>=700 THEN U(T)=R+U(T):GOTO445
440 GOTO370
445 FOR I=1TO11:B(I)=I:NEXT
450 GOSUB800:T=4
455 FOR I=1TO11
460 E=RND(11):IF B(11)=0 THEN 465
462 IF RE(E)=0 THEN 460
465 J(I)=E:IF B(I)=0 THEN 475
466 RE(E)=0
470 PRINT@A(I)-3,P(E);
475 IF P(E)=0 THEN 460 ELSE NEXT
480 FOR K=1TO450:NEXT
490 FOR I=1TO11:FOR J=1TOG
492 IF B(I)=0 THEN 510
495 Q$=INKEY$:IF Q$=CHR$(32) GOSUB900
500 PRINT@A(I)-3,"    ";
505 Q$=INKEY$:IF Q$=CHR$(32)GOSUB900
510 NEXT J:T=T+4:NEXT I
520 FOR K=1TO450:NEXT
540 IF M=11 THEN 1500
545 IF M=1 AND TY=11 THEN 1500
555 IF T>=48 THEN T=0
560 T=T+4
570 GOSUB600
580 M=0:GOTO455
600 FOR I=1TO11
610 IF B(I)=0 THEN 630
620 RE(I)=I
630 NEXT
640 RETURN
800 REM TOTALS PER ROW
```

```
810 H=1:I=1:J=4
820 P(H)=U(I)+P(H):L(H)=P(H)
830 IF I<>J THEN I=I+1:GOTO820
840 H=H+1:I=I+1:J=J+4
850 IF I<=43 THEN 820
860 RETURN
900 F=P(J(I)):D=L(I):U=10:U1=1
910 PRINT@A(I)-U,"     ";
920 IF U1<>4 THEN 940
930 GOTO960
940 U=U+15:U1=U1+1
950 GOTO910
960 IF D<>F THEN 980
970 B(I)=0:P(I)=0:GOTO1100
980 PRINT@L+92,"...I N C O R R E C T..."
985 FOR TT=1TO500:NEXT
990 PRINT@L+92,"                    "
995 U=55:U1=1:Q1=T-3:Q2=T:M=M+1
1000 PRINT@A(I)-U,A$(Q1);
1010 IF Q1<>Q2 THEN 1030
1020 TY=TY+1
1025 RETURN
1030 Q1=Q1+1:U=U-15:U1=U1+1
1040 GOTO1000
1100 PRINT@L+92,"...C O R R E C T..."
1110 FOR TT=1TO500:NEXT
1120 PRINT@L+92,"                   "
1125 IF BX=1 BX=0:RETURN
1130 Y=T-3:BX=1
1140 IF LEFT$(A$(Y),1)="W" THEN 1160
1150 IF LEFT$(A$(Y),1)="B" THEN 1170
1160 A1=A1+1:GOTO1180
1170 A2=A2+1
1180 IF Y<>T THEN Y=Y+1:GOTO1140
1190 IF A1=A2 THEN 1220
1200 IF A1>A2 THEN 1230
1210 C$="BLACK":GOTO1240
1220 C$="EQUAL":GOTO1240
1230 C$="WHITE"
1240 PRINT@L+10,;
1250 PRINT"INPUT THE DOMINANT COLOR"
1260 INPUT"FOR THAT ROW";P$
1270 IF P$<>C$ THEN ZZ=1:GOTO1280
1275 TC=TC+1:M=0
```

```
1280 PRINT@L+10,;
1290 PRINT"                              "
1300 PRINT"          "
1305 A1=0:A2=0:C$="":IF TC>=11 THEN 1600
1310 IF ZZ=1 ZZ=0:B(I)=I:P(I)=F:BX=0:GOTO980
1320 GOTO1100
1500 PRINT@L+10,;
1510 PRINT"DON'T JUST SIT THERE PRESSING"
1520 PRINT"THE SPACE BAR...GUESSING, USE"
1530 PRINT"YOUR  B R A I N ! ! !"
1535 PRINT"AND START OVER !!!!!"
1540 FOR TT=1TO2000:NEXT
1550 CLS:GOSUB50
1560 IT=1
1570 FOR I=1TO11:P(I)=0:L(I)=0:NEXT
1580 GOTO300
1600 PRINT@L+10,;
1605 IF TC>=30 THEN 1670
1610 PRINT"CONGRATULATIONS !!!"
1620 PRINT"YOU HAVE ";
1630 IF TC>=20 PRINT"FINALLY ";
1640 PRINT"COMPLETED";TC;"PROBLEMS."
1650 PRINT"AND...ENTERED THE CORRECT COLORS..."
1660 GOTO2300
1670 PRINT"W O W ! ! ! ! !"
1680 PRINTTC;"INCORRECT PROBLEMS ! ! !"
1690 PRINT"YOU SHOULD WORK ON YOUR ADDITION"
1700 PRINT"- AND YOUR MEMORY :- CAREFULLY!"
1710 GOTO2300
1800 REM INSTRUCTIONS (CONT)
1810 PRINT"CORRECT ANSWER, PRESS THE"
1820 PRINT"SPACE-BAR. THE COMPUTER"
1830 PRINT"WILL BLACKOUT THE 4 COLORS"
1840 PRINT"AND SEE IF IT WAS INDEED THE CORRECT
     TOTAL."
1850 PRINT"IF THE TOTAL WAS CORRECT, YOU WILL"
1860 PRINT"BE ASKED TO INPUT THE DOMINATING"
1870 PRINT"COLOR IN THAT ROW (BLACK/WHITE OR"
1880 PRINT"EQUAL - 2 BLACK + 2 WHITE) IF"
1890 PRINT"YOU ARE CORRECT, THAT ROW WILL"
1900 PRINT"BE OMITTED, IF INCORRECT, THE"
1910 PRINT"COLORS WILL BE REPRINTED IN THAT"
```

```
1920 PRINT"ROW AND PLAY WILL RESUME."
1930 PRINT
1940 INPUT"ENTER";X
1950 PRINT"YOU MUST REMEMBER TWO VITAL RULES"
1970 PRINT"1) ONLY PRESS THE SPACE BAR"
1980 PRINT"AFTER THE TOTAL HAS BEEN BLACKED"
1990 PRINT"OUT (ASSUMING IT IS THE RIGHT TOTAL)."
2000 PRINT"IF THE TOTAL DOES NOT MATCH THE"
2010 PRINT"ADDED NUMBERS IN THAT ROW, DO
     NOTHING !"
2020 PRINT"2) REMEMBER THAT YOU WILL HAVE"
2030 PRINT"A TIME LIMIT WITH IN WHICH TO ADD"
2040 PRINT"THE NUMERALS AND PRESS THE"
2050 PRINT"SPACE BAR."
2060 PRINT"(THIS PROGRAM ALSO USES THE"
2070 PRINT"INKEY$ FUNCTION)."
2080 PRINT
2090 INPUT"ENTER";X
2095 PRINT:PRINT:PRINT:PRINT:PRINT:PRINT
2100 PRINT"IF YOU START TO GUESS"
2110 PRINT"PRESSING THE SPACE BAR FOR"
2120 PRINT"EVERY ROW, YOU WILL ONLY DEFEAT"
2130 PRINT"THE PURPOSE OF THE PROGRAM,"
2140 PRINT"RECEIVE A WARNING FROM THE"
2150 PRINT"COMPUTER, AND HAVE TO START OVER!!"
2160 PRINT"THE PROGRAM ENDS WHEN YOU HAVE"
2170 PRINT"ENTERED CORRECT TOTALS"
2175 PRINT"AND COLORS FOR 11 ROWS."
2180 PRINT"NOW YOU CAN FINALLY PRESS 'ENTER'"
2190 INPUT"TO BEGIN";X
2200 GOSUB20:GOTO300
2300 REM CONCLUSION
2310 PRINT"CONCLUSION OF 'BLACKOUT'..."
2320 END
```

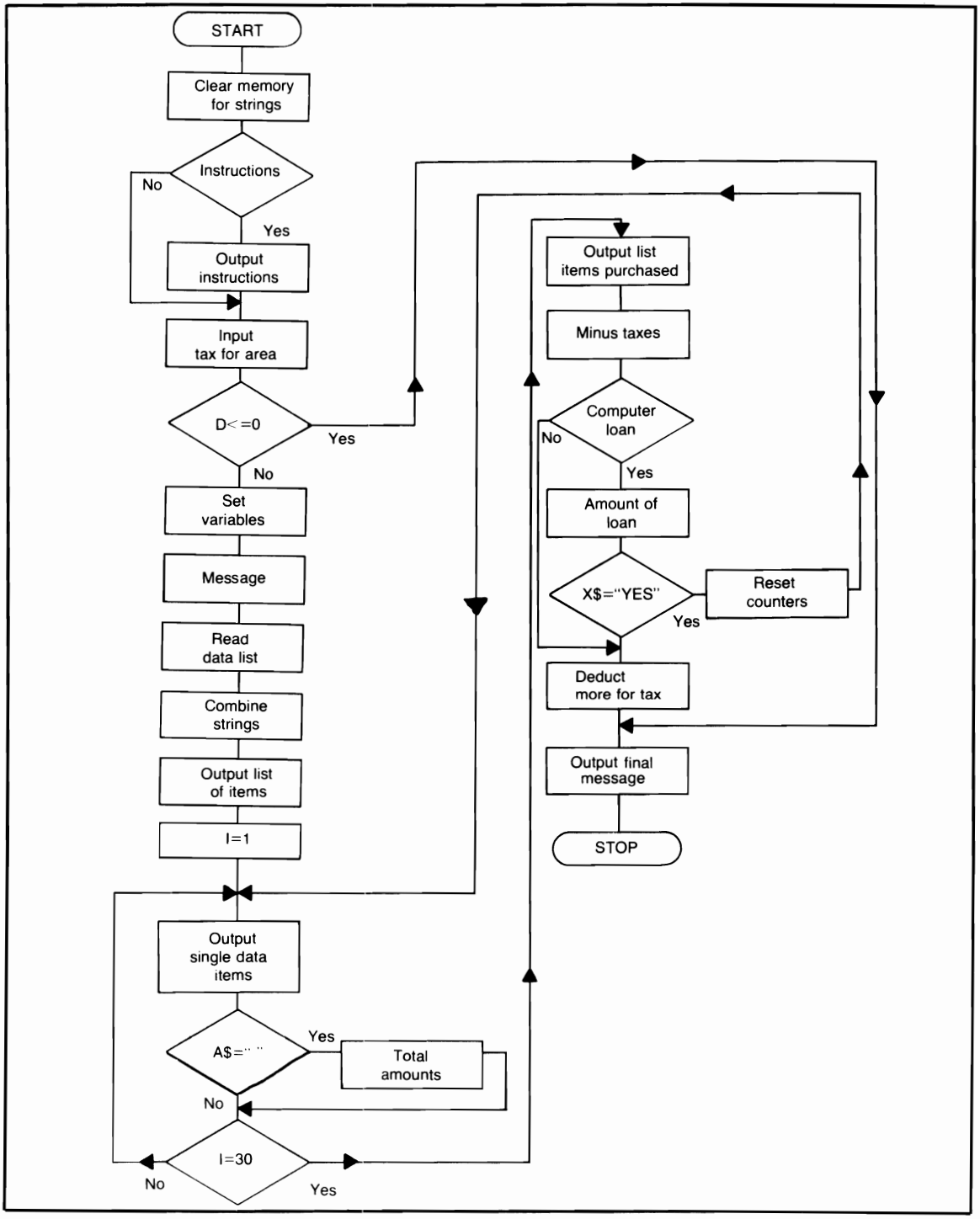
TO THE DOGS



This is a simple, yet effective program that will pick out all of the "greedy" people who use it. After giving you a $50,000 prize, the computer will take more and more for taxes, and then try to con you into taking a computer loan! Good luck . . . Don't be too greedy!!!

Sample Run

```
          TO THE DOGS

INSTRUCTIONS REQUIRED? YES

YOU HAVE JUST WON A GRAND
PRIZE GIVEAWAY...$50,000.00
IN COLD HARD CASH.
NOW THAT YOU HAVE RECEIVED
YOUR MONEY, YOU CAN'T WAIT
TO SPEND IT. WHAT WILL YOU
SPEND IT ON?
THAT'S SIMPLE, THIS IS A
COMPUTER PROGRAM, RIGHT?
SO, YOU'LL SPEND IT ON
COMPUTER MERCHANDISE.

*** ENTER ***?

SO VERY SIMPLE YOU SAY?
```



Flowchart for *To the Dogs*

```
THE COMPUTER OFFERS YOU
ITEMS AND YOU BUY THEM, WHAT
ELSE COULD BE EASIER, WHAT
ELSE INDEED. PRESS ENTER
AND START SPENDING?

WHAT IS THE TAX IN YOUR AREA?
(INTEGER AMOUNT IF .04 CENTS
ENTER ONLY 4)? 0
YOU DO HAVE TAXES !!

WHAT IS THE PERCENT OF
TAX IN YOUR AREA? 4
NOW REMEMBER, FOR EVERY
DOLLAR YOU SPEND THERE
WILL BE .4 CENTS COLLECTED
FOR TAXES, IN THIS CASE, COMPUTER
TAXES. SO IF YOU'RE NOT
CAREFUL, YOU'LL GO TO THE DOGS
FASTER THAN YOU THINK.

YOUR WINNINGS: $50,000.00
MINUS $20,000.00 FOR TAXES.
LEAVES YOU $30,000.00 TO SPEND.

PRESS ENTER FOR A LIST
OF ITEMS YOU CAN PURCHASE?

NEW HOME (3 BEDROOM)
DIAMOND RINGS
CAR (WITH OPTIONS)
ASSORTED JEWELRY
COMPLETE HOME FURNISHINGS
CLOTHES (MEN)
FOOD SUPPLY (1 YEAR)
CLOTHES (WOMEN)
KITCHEN APPLIANCES
CLOTHES (CHILDREN)
TOYS (ROOM FULL)
COLOR TELEVISION
STEREO EQUIPMENT
MICROWAVE OVEN
RECORDS (50 ALBUMS)
TRIP TO HAWAII
HOME COMPUTER SYSTEM
```

```
TRIP TO JAPAN
POOL TABLE
TRIP TO BAHAMAS
SMALL KITCHEN APPLIANCES
TRIP TO PARIS
LIVING ROOM FURNISHINGS
CANDY BARS (200)
BEDROOM FURNISHINGS
MAGAZINE SUB. (10)
RECREATION EQUIPMENT
WASHER / DRYER
WATCHES
DISHWASHER

PRESS ENTER AFTER VIEWING?
NOW THE ITEMS WILL BE
PRINTED ONE AT A TIME
WITH THEIR TOTAL COST.
TO PURCHASE ANY ITEM, PRESS
THE SPACE BAR. OTHERWISE
DO NOTHING.

 1) NEW HOME (3 BEDROOM)                $40,000.00
 2) CAR (WITH OPTIONS)                   $9,000.00
 3) COMPLETE HOME FURNISHINGS           $12,000.00
 4) FOOD SUPPLY (1 YEAR)                 $2,000.00
 5) KITCHEN APPLIANCES                   $5,000.00

TOTAL PURCHASES (NOT INCLUDING
TAXES)... $5,000.00
 6) TOYS (ROOM FULL)                     $1,000.00

TOTAL PURCHASES (NOT INCLUDING
TAXES)... $6,000.00

TOTAL PURCHASES (NOT INCLUDING
TAXES)... $7,000.00
 7) STEREO EQUIPMENT                     $3,000.00

TOTAL PURCHASES (NOT INCLUDING
TAXES)... $10,000.00
 8) RECORDS (50 ALBUMS)                    $400.00

TOTAL PURCHASES (NOT INCLUDING
```

TAXES)... $10,400.00	
9) HOME COMPUTER SYSTEM	$3,000.00
TOTAL PURCHASES (NOT INCLUDING TAXES)... $13,400.00	
TOTAL PURCHASES (NOT INCLUDING TAXES)... $16,400.00	
10) POOL TABLE	$995.00
TOTAL PURCHASES (NOT INCLUDING TAXES)... $17,395.00	
TOTAL PURCHASES (NOT INCLUDING TAXES)... $18,390.00	
TOTAL PURCHASES (NOT INCLUDING TAXES)... $19,385.00	
11) SMALL KITCHEN APPLIANCES	$500.00
TOTAL PURCHASES (NOT INCLUDING TAXES)... $19,885.00	
12) LIVING ROOM FURNISHINGS	$4,500.00
13) BEDROOM FURNISHINGS	$6,500.00
TOTAL PURCHASES (NOT INCLUDING TAXES)... $26,385.00	
14) RECREATION EQUIPMENT	$1,200.00
TOTAL PURCHASES (NOT INCLUDING TAXES)... $27,585.00	
15) WATCHES	$400.00
TOTAL PURCHASES (NOT INCLUDING TAXES)... $27,985.00	
TOTAL PURCHASES (NOT INCLUDING TAXES)... $28,385.00	
16) DIAMOND RINGS	$12,000.00
TOTAL PURCHASES (NOT INCLUDING TAXES)... $40,385.00	
17) ASSORTED JEWELRY	$2,300.00

```
TOTAL PURCHASES (NOT INCLUDING
TAXES)... $42,685.00

TOTAL PURCHASES (NOT INCLUDING
TAXES)... $44,985.00

TOTAL PURCHASES (NOT INCLUDING
TAXES)... $47,285.00
18) CLOTHES (MENS)                    $1,800.00
19) CLOTHES (WOMEN)                   $2,400.00

TOTAL PURCHASES (NOT INCLUDING
TAXES)... $49,685.00
20) CLOTHES (CHILDREN)                $1,200.00
21) COLOR TELEVISION                  $1,500.00

TOTAL PURCHASES (NOT INCLUDING
TAXES)... $51,185.00
22) MICROWAVE OVEN                      $600.00
23) TRIP TO HAWAII                    $2,500.00
24) TRIP TO JAPAN                     $3,500.00
25) TRIP TO BAHAMAS                   $4,200.00
26) TRIP TO PARIS                     $6,500.00
27) CANDY BARS (200)                     $65.00
28) MAGAZINE SUB. (10)                   $90.00
29) WASHER / DRYER                      $600.00
30) DISHWASHER                          $245.00

YOU HAVE PURCHASED 21 ITEMS.
YOUR WINNINGS WERE: $30,000.00
THESE 21 ITEMS CAME TO: $51,185.00
TAXES ON THESE ITEMS EQUAL: $20,474.00
YOU HAVE OVERSPENT, BY A TOTAL
OF: $41,659.00
THIS AMOUNT: $60,948.00
IS THE TOTAL COLLECTED FOR
TAXES, DURING AND AFTER
THE PURCHASE OF ALL 21 ITEMS.

PRESS ENTER?

INSTEAD OF FILING FOR BANKRUPTCY, YOUR
COMPUTER WILL GIVE YOU A LOAN
OF: $41,659.00
```

```
OR, YOU CAN TAKE A LOAN FOR:
$121,896.00
PROVIDED YOU PAY IT BACK WITH
A REASONABLE AMOUNT OF
INTEREST. ACTUALLY, BY
TAKING THE LARGER LOAN YOU'LL
BE ABLE TO INCREASE YOUR
BUYING POWER.

SELECT YOUR LOAN:
1)  $41,659.00
2) $121,896.00
? 2

YOU HAVE ACCEPTED THE LARGER
LOAN...THAT'S FINE.
AMOUNT OF LOAN FINANCED:$121,896.00
FINANCE CHARGES:$414,446.00
DO YOU WANT TO MAKE
ADDITIONAL PURCHASES NOW? YES
1) NEW HOME (3 BEDROOM)                    $40,000.00

///// STOP /////
```

Program Listing

```
10 REM PROGRAM TITLE: TO THE DOGS
20 CLS:CLEAR 500
30 PRINT TAB(15);"TO THE DOGS"
40 PRINT
50 INPUT"INSTRUCTIONS REQUIRED";X$
60 IF X$="NO" THEN 280
70 PRINT
80 PRINT"YOU HAVE JUST WON A GRAND"
90 PRINT"PRIZE GIVEAWAY...$50,000.00"
100 PRINT"IN COLD HARD CASH."
110 PRINT"NOW THAT YOU HAVE RECEIVED"
120 PRINT"YOUR MONEY, YOU CAN'T WAIT"
130 PRINT"TO SPEND IT. WHAT WILL YOU"
140 PRINT"SPEND IT ON ?"
150 PRINT"THAT'S SIMPLE, THIS IS A"
160 PRINT"COMPUTER PROGRAM, RIGHT ?"
170 PRINT"SO, YOU'LL SPEND IT ON"
```

```
180 PRINT"COMPUTER MERCHANDISE."
190 PRINT
200 INPUT"*** ENTER ***";X
210 CLS
220 PRINT"SO VERY SIMPLE YOU SAY ?"
230 PRINT"THE COMPUTER OFFERS YOU"
240 PRINT"ITEMS AND YOU BUY THEM. WHAT"
250 PRINT"ELSE COULD BE EASIER? WHAT"
260 PRINT"ELSE INDEED? PRESS ENTER"
270 INPUT"AND START SPENDING";X
280 CLS
290 PRINT"WHAT IS THE TAX IN YOUR AREA"
300 PRINT"(INTEGER AMOUNT, IF .04 CENTS"
302 INPUT"ENTER ONLY 4)";T
305 IF T<=0 PRINT"YOU DO HAVE TAXES !!":GOTO290
310 TT=T/100:IF INT(T)<=0 THEN 290
320 PRINT"NOW REMEMBER, FOR EVERY"
330 PRINT"DOLLAR YOU SPEND THERE"
340 PRINT"WILL BE";TT;"CENTS COLLECTED"
350 PRINT"FOR TAXES, IN THIS CASE, COMPUTER"
360 PRINT"TAXES. SO IF YOU'RE NOT"
370 PRINT"CAREFUL, YOU'LL GO TO THE DOGS"
380 PRINT"FASTER THAN YOU THINK."
390 W$="$$###,###.##"
400 D=5E+04:DIM M$(30),M(30):L=1:V=1
405 DIM P$(30),P(30)
410 PRINT"YOUR WINNINGS:";
420 PRINT USING W$;D
430 A=D*TT
440 PRINT"MINUS";
450 PRINT USING W$;A;
460 PRINT" FOR TAXES."
470 GOTO1100
480 PRINT"LEAVES YOU";
490 PRINT USING W$;D;
500 PRINT" TO SPEND."
510 GOTO800
520 REM DATA CHOICES
530 FOR I=1TO30:READ M$(I):NEXT
540 FOR I=1TO30:READ M(I):NEXT
550 I=1:J=16
560 IF I=11 GOSUB1140
570 IF I=12 GOSUB1160
580 IF I=13 GOSUB1160
```

```
590 PRINT M$(I);
600 REM CONCATENATE STRINGS
610 REM FOR TRIPS
620 IF J=24 GOSUB1180
630 IF J=25 GOSUB1180
640 IF J=26 GOSUB1180
650 PRINT TAB(30);M$(J)
660 IF I=15 THEN 710
690 I=I+1:J=J+1
700 GOTO560
710 GOTO860
800 REM INPUT CHOICES
810 PRINT
820 PRINT"PRESS ENTER FOR A LIST"
830 INPUT"OF ITEMS YOU CAN PURCHASE";XX
840 CLS
850 GOTO520
860 PRINT@960,;
870 PRINT"PRESS ENTER AFTER VIEWING";
880 INPUT XX
890 CLS
900 PRINT"NOW THE ITEMS WILL BE"
910 PRINT"PRINTED ONE AT A TIME"
920 PRINT"WITH THEIR TOTAL COST."
930 PRINT"TO PURCHASE ANY ITEM,"
940 PRINT"PRESS THE SPACE BAR"
950 PRINT"OTHERWISE DO NOTHING..."
955 FOR XX=1TO2500:NEXT
960 I=1:GOSUB1045
970 PRINT I;")  ";M$(I);
980 PRINT TAB(32);USING W$;M(I)
990 FOR XX=1TO200
1000 A$=INKEY$
1010 IF A$=" " THEN 1030
1015 NEXT:IF I=30 THEN L=L-1:GOTO1700
1020 I=I+1:GOSUB1050:GOSUB1045
1025 GOTO970
1030 P$(L)=M$(I)
1035 P(L)=M(I):A=A+P(L)*TT:L=L+1
1040 P=P(L-1)+P:GOSUB1600:GOTO1015
1045 PRINT@448,;:RETURN
1050 FOR X=0TO90:SET(X,21)
1055 RESET(X,21):NEXT
1060 RETURN
```

```
1100 REM DEDUCTIONS
1110 D=D-A
1120 IF D<=0 THEN 2835
1130 GOTO480
1140 M$(I)=M$(I)+" "+RIGHT$(M$(5),10)
1150 RETURN
1160 M$(I)=M$(I)+" "+RIGHT$(M$(3),11)
1170 RETURN
1180 T$=M$(J)
1190 M$(J)=LEFT$(M$(23),7)+" "+T$
1195 RETURN
1200 DATA NEW HOME (3 BEDROOM)
1210 DATA CAR (WITH OPTIONS)
1220 DATA COMPLETE HOME FURNISHINGS
1230 DATA FOOD SUPPLY (1 YEAR)
1240 DATA KITCHEN APPLIANCES
1250 DATA TOYS (ROOM FULL)
1260 DATA STEREO EQUIPMENT
1270 DATA RECORDS (50 ALBUMS)
1280 DATA HOME COMPUTER SYSTEM
1290 DATA POOL TABLE
1300 DATA SMALL KITCHEN
1310 DATA LIVING ROOM
1320 DATA BEDROOM
1330 DATA RECREATION EQUIPMENT
1340 DATA WATCHES
1350 DATA DIAMOND RINGS
1360 DATA ASSORTED JEWERLY
1370 DATA CLOTHES (MEN)
1380 DATA CLOTHES (WOMEN)
1390 DATA CLOTHES (CHILDREN)
1400 DATA COLOR TELEVISION
1410 DATA MICROWAVE OVEN
1420 DATA TRIP TO HAWAII
1430 DATA JAPAN
1440 DATA BAHAMAS
1450 DATA PARIS
1460 DATA CANDY BARS (200)
1470 DATA MAGAZINE SUB. (10)
1480 DATA WASHER / DRYER
1490 DATA DISHWASHER
1500 REM DATA AMOUNTS
1510 DATA 40000,9000,12000
1520 DATA 2000,5000,1000,3000
```

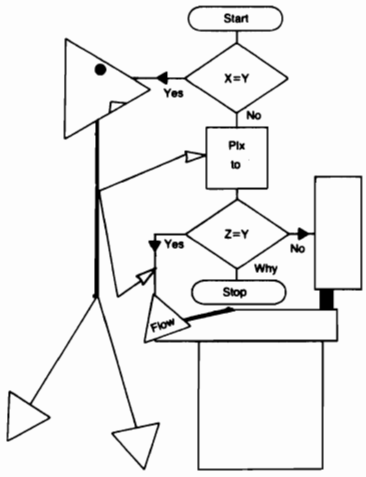
```
1530 DATA 400,3000,995,500
1540 DATA 4500,6500,1200
1550 DATA 400,12000,2300
1560 DATA 1800,2400,1200
1570 DATA 1500,600,2500
1580 DATA 3500,4200,6500
1590 DATA 65,90,600,245
1600 REM PRINT TOTAL PURCHASES
1610 PRINT@704,;
1620 PRINT"TOTAL PURCHASES (NOT INCLUDING"
1630 PRINT"TAXES)...";
1640 PRINT USING W$;P
1650 RETURN
1660 GOSUB1030:GOSUB995
1670 GOTO1670
1700 REM TOTAL PURCHASED
1710 CLS:LP=L-E
1720 IF P<=0 THEN CLS:GOTO960
1730 W=P*TT:J(V)=L-E:TP=TP+J(V)
1735 REM IF HK=1 THEN L=L-E
1740 PRINT"YOU HAVE PURCHASED";LP;"ITEMS."
1742 IF HH=1 AND HK=1 THEN HH=0:GOTO1770
1745 IF HK=1 PRINT"YOUR LOAN AMOUNT:";:GOTO1760
1750 PRINT"YOUR WINNINGS WERE:";
1760 PRINT USING W$;D
1770 PRINT"THESE";LP;"ITEMS CAME TO:";
1780 PRINT USING W$;P
1790 PRINT"TAXES ON THESE ITEMS EQUAL:";
1800 PRINT USING W$;W
1810 U=(P+W)-D:UU=P+W:Q=Q+W
1820 IF UU>D THEN 1840
1830 XE=1:D=D-(P+W):GOTO2310
1840 PRINT"YOU HAVE OVERSPENT, BY A TOTAL"
1850 PRINT"OF:";
1860 PRINT USING W$;U
1870 PRINT"THIS AMOUNT:";
1880 PRINT USING W$;Q
1890 PRINT"IS THE TOTAL COLLECTED FOR"
1900 PRINT"TAXES, DURING AND AFTER"
1910 PRINT"THE PURCHASE OF ALL";L;"ITEMS."
1920 PRINT
1930 INPUT"PRESS ENTER";XX
1940 CLS
1950 PRINT"INSTEAD OF FILING FOR BANKRUPTCY,"
```

```
1960 PRINT"YOUR COMPUTER WILL GIVE YOU"
1970 PRINT"A LOAN OF:";
1980 PRINT USING W$;U
1990 PRINT"OR, YOU CAN TAKE A LOAN FOR:"
2000 LN=INT(Q*2)
2005 IF LN<U THEN LN=U*1.5
2010 PRINT USING W$;LN
2020 PRINT"PROVIDED YOU PAY IT BACK WITH"
2030 PRINT"A REASONABLE AMOUNT OF"
2040 PRINT"INTEREST. ACTUALLY BY"
2050 PRINT"TAKING THE LARGER LOAN YOU'LL"
2060 PRINT"BE ABLE TO INCREASE YOUR"
2070 PRINT"BUYING POWER."
2080 PRINT:QI=Q+QI
2090 PRINT"SELECT YOUR LOAN:"
2100 PRINT"1) ";
2110 PRINT USING W$;U
2120 PRINT"2) ";
2130 PRINT USING W$;LN
2140 INPUT F
2150 CLS
2160 IF F=1 THEN D=0:JL=1:GOTO2310
2170 PRINT"YOU HAVE ACCEPTED THE LARGER"
2180 PRINT"LOAN...THAT'S FINE."
2190 PRINT"AMOUNT OF LOAN FINANCED:";
2200 PRINT USING W$;LN
2210 PRINT"FINANCE CHARGES:";
2220 FI=LN*((8.5)*(TT)):QI=FI+QI:D=LN
2230 PRINT USING W$;FI
2240 PRINT"DO YOU WANT TO MAKE"
2250 PRINT"ADDITIONAL PURCHASES NOW";
2260 INPUT X$
2270 IF X$="YES" OR X$="Y" THEN 2285
2280 KI=1:GOTO2310
2285 IF JL=1 THEN 2900
2290 E=L:L=L+1:V=V+1
2295 P1=P:A1=A:A=0:P=0:HK=1
2300 GOTO960:REM MORE PURCHASES
2310 PRINT
2315 IF KI=1 KI=0:GOTO2700
2320 PRINT"WELCOME TO THE END OF"
2330 PRINT"THE LINE..."
2335 IF XE=1 XE=0:GOTO2500
2340 PRINT"THE COMPUTER'S TOTAL"
```

```
2350 PRINT"COLLECTIONS =";
2360 PRINT USING W$;QI
2500 REM USER BALANCE LEFT
2510 PRINT"YOU STILL HAVE";
2520 PRINT USING W$;D;
2530 PRINT" LEFT TO SPEND."
2540 REM PRINT ITEMS
2550 PRINT"YOUR PURCHASED ITEMS ARE:"
2555 PRINT:IF TP>=5 TY=5 ELSE TY=TP
2560 LK=1
2565 FOR I=LKTOTY
2570 PRINT I;") ";P$(I);"...AMOUNT:";
2580 PRINT USING W$;P(I):NEXT
2585 IF TY<>TP GOTO2650
2590 FOR XX=1TO2500:NEXT
2600 PRINT
2605 IF FG=1 FG=0:GOTO3110
2610 INPUT"PRESS ENTER";XX
2620 CLS:HH=1:GOTO2240
2650 PRINT
2660 INPUT"PRESS ENTER";XX
2670 LK=TY+1:TY=TP:GOTO2565
2700 REM FEDERAL TAXES
2710 PRINT
2720 PRINT"YOU'VE DECIDED NOT TO PURCHASE"
2730 PRINT"MORE ITEMS NOW ?"
2740 IF D<10 THEN 2840
2750 PRINT"THE MONEY YOU HAVE REMAINING"
2760 PRINT"IN YOUR POSSESSION IS GREATER"
2770 PRINT"THAN SHOULD BE. I MUST"
2780 PRINT"REMOVE AN AMOUNT FOR FEDERAL"
2790 PRINT"TAXES, THIS AMOUNT IS:";
2800 AM=(D*TT)*24.9
2810 PRINT USING W$;AM
2820 PRINT"THIS WILL LEAVE YOU WITH:";
2830 PRINT USING W$;D-AM
2835 PRINT"YOU'VE JUST GONE TO THE DOGS !!"
2840 PRINT"GOODBYE...FOR NOW !!!"
2850 END
2900 PRINT:REM LOAN PAYBACK
2910 PRINT"YOU HAVE OVERSPENT YOUR"
2920 PRINT"WINNINGS AND ACCEPTED A"
2930 PRINT"LOAN FROM THE COMPUTER."
2940 PRINT"YOU ARE AT THE END OF THE LINE"
```

```
2950 PRINT"AND MUST REPAY THAT LOAN BY"
2960 PRINT"SELLING SOME ITEMS."
2970 PRINT"NATURALLY, THESE ITEMS HAVE"
2980 PRINT"DEPRECIATED IN VALUE."
2990 PRINT
3000 PRINT"PRESS ENTER NOW AND THE"
3010 PRINT"COMPUTER WILL GIVE YOU A"
3020 PRINT"LIST OF THE ITEMS YOU PURCHASED"
3030 PRINT"AND THEIR CURRENT VALUES"
3040 INPUT X$:CLS
3050 FOR I=1TOTP
3055 IF LEFT$(P$(I),1)="F" THEN P(I)=0:GOTO3070
3060 P(I)=P(I)-(P(I)*TT)*24.7
3070 NEXT
3080 FG=1
3090 REM GOTO PRINTOUT
3100 GOTO2540
3110 REM PAYBACK
3120 PRINT"YOUR LOAN WAS FOR";
3130 PRINT USING W$;U+FI
3135 PRINT"INCLUDING INTEREST."
3140 PRINT"HOW MANY ITEMS DO YOU WANT"
3150 PRINT"TO SELL BACK TO THE COMPUTER"
3160 INPUT"TO REPAY THIS LOAN";PB
3170 PRINT"ENTER THE NUMBERS FOR THESE"
3180 PRINT PB;"ITEMS."
3190 FOR I=1TOPB
3200 INPUT DF
3210 WE=P(DF)+WE
3220 NEXT
3230 IF WE<U THEN 3270
3240 PRINT"VERY WELL DONE, YOU'VE PAID"
3250 PRINT"BACK THE LOAN..."
3260 GOTO2840
3270 PRINT"THE VALUE OF THE ITEMS YOU'VE"
3280 PRINT"SOLD BACK DOESN'T EQUAL THE"
3290 PRINT"AMOUNT OF YOUR LOAN..."
3295 PRINT"TO THE DOGS YOU GO !!"
3300 GOTO3260
```

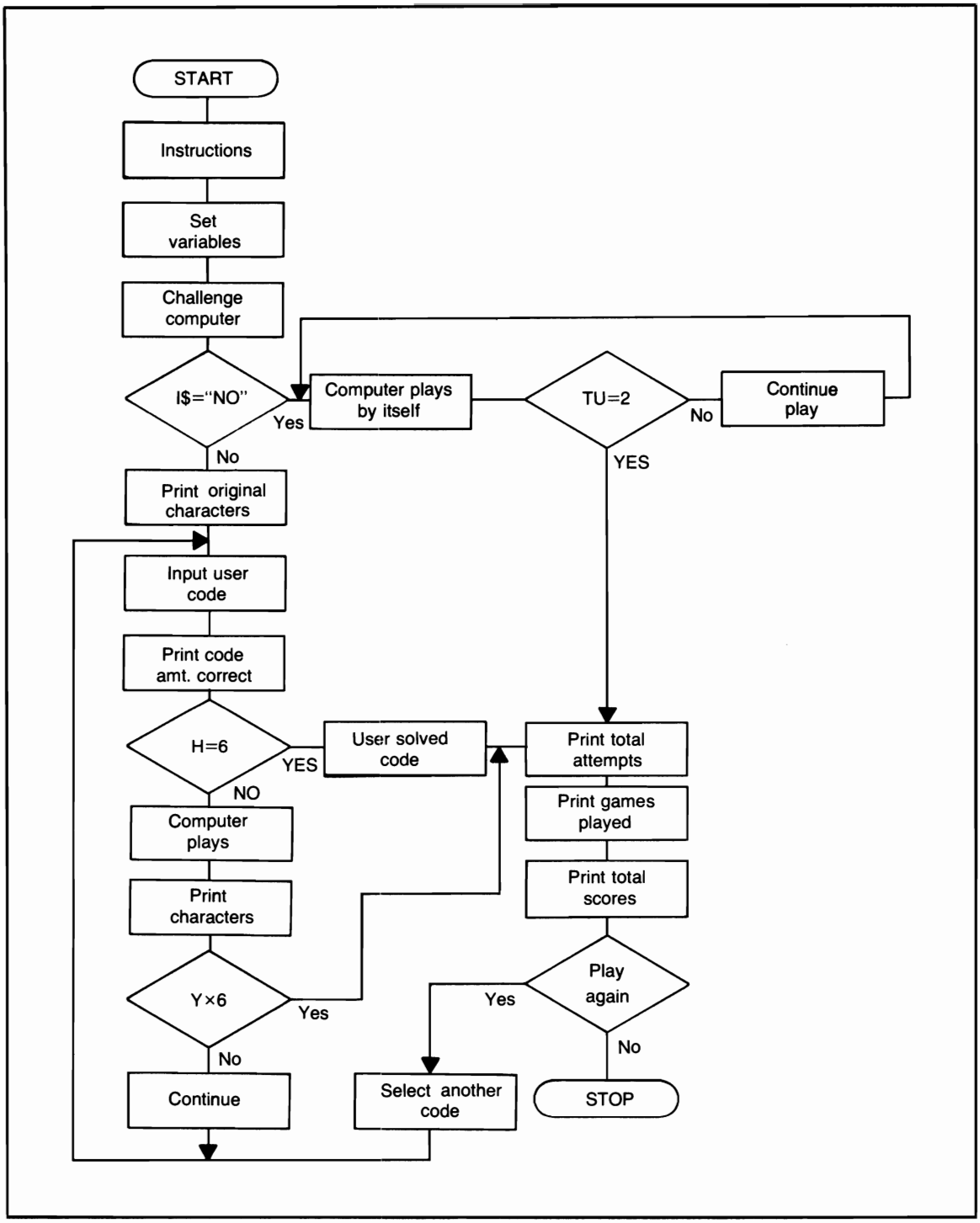
CHALLENGE YOUR COMPUTER



Don't let your computer trick you with this program. If you aren't sharp enough to match the characters with their corresponding numbers on your own and you rely on the computer's efforts, you just might get fooled! You can play against your computer, or the computer can play by itself.

Sample Run

```
          CHALLENGE YOUR COMPUTER

SEE THE INSTRUCTIONS? YES

THIS PROGRAM WILL LET YOU CHALLENGE
YOUR COMPUTER, OR YOU CAN LET
THE COMPUTER PLAY BY ITSELF.
IT IS A NUMBERS GAME,
BUT WITH A NEW TWIST: THE NUMBERS 1-6
WILL BE USED ALONG WITH CHARACTER CODES
THAT WILL BE RANDOMLY SELECTED FROM 174
TO 191.

PRESS ENTER?

YOU WILL PLAY FIRST. YOU WILL INPUT
YOUR GUESS CONCERNING HOW
THESE NUMBERS ARE RANDOMLY ARRANGED
```



Flowchart for *Challenge your Computer*

```
IN THE COMPUTER'S MEMORY. ENTRY OF
THESE NUMBERS WILL USE THE INKEY$
FUNCTION, SO DON'T PRESS ENTER.
AFTER YOU INPUT YOUR NUMBERS THE COMPUTER
WILL PRINT THE NUMBER YOU HAVE
CORRECT (IF ANY). THE COMPUTER WILL THEN
PLAY, BUT, IT WILL NOT PRINT ITS
NUMBER SELECTION, IT WILL ONLY PRINT
THE CHARACTERS PERTAINING TO THE NUMBERS.

PRESS ENTER?

YOU CAN LOOK AT THE COMPUTER'S SELECTION
TO TRY AND UNSCRAMBLE THE CORRECT CODE,
BUT, YOU MIGHT BE FOOLED!!
THE OBJECT IS TO UNSCRAMBLE THE CODE
BEFORE THE COMPUTER DOES.
OH YES, IF YOU DON'T WANT TO CHALLENGE
THE COMPUTER, JUST ANSWER THE APPROPRIATE
QUESTION WITH A 'NO' AND THE COMPUTER
WILL PLAY BY ITSELF.

PRESS ENTER TO PLAY?

DO YOU WANT TO CHALLENGE YOUR COMPUTER? YES
```

Program Listing

```
10 REM PROGRAM TITLE: CHALLENGE YOUR COMPUTER
12 GOSUB2100
15 CLS:CLEAR500
20 FOR I=1TO6:A(I)=I:K(I)=I:V(I)=I:NEXT:C=65
21 RANDOM
24 V$="YOU'LL PLAY FIRST"
28 J=1:H=0:Y=0:JM=6:AA=0:TS=0:CC=0:RR=0
30 IF JK=1 THEN RF=0:GOTO35
31 PRINT"DO YOU WANT TO CHALLENGE YOUR
   COMPUTER";
32 INPUT I$
33 IF I$="NO" THEN JK=1:RF=0
34 CLS:IF JK=0 PRINT TAB(15);V$;:GOSUB1150:CLS
35 P=RND(191)
40 IF P<=174 THEN 35
45 P(J)=P
```

```
50 Q=RND(6)
60 IF A(Q)=0 THEN 50
65 REM PRINTA(Q);
70 Q(J)=A(Q):A(Q)=0:J=J+1
80 IF J<=6 THEN 35
100 FOR I=1TO6
110 A$(I)=STRING$(6,P(I))
115 Q$(I)=A$(I):W$(I)=A$(I)
120 NEXT:X$=" "
125 GOSUB130:GOTO190
130 I=1
140 PRINT A$(I)+X$;
145 I=I+1:IF I<=6 THEN 140
146 IF RM=1 RM=0
147 IF JK=1 THEN A=C+42:RETURN
150 A=C:Z=1
160 PRINT@A,K(Z);
170 A=A+7:Z=Z+1
180 IF Z<=6 THEN 160 ELSE RETURN
190 IF ((AA)+(RF)+(TS))=0 GOSUB430
200 REM USERS TURN
210 IF JK=1 THEN 1200
230 I=1:IF RF=1 GOSUB1000:GOSUB150
235 IF RF=1 RF=0:GOTO1200
240 A$=INKEY$:IF JK=1 THEN A$="C":GOTO1200
245 IF A$="H" GOSUB700:GOSUB400:GOTO900
250 IF A$="" THEN 240
260 K(I)=VAL(A$):K=K(I)
270 A$(I)=Q$(K)
272 IF K=Q(I) THEN H=H+1
275 I=I+1
280 IF I<=6 THEN 240
285 IF H>=1 GOSUB 500
290 RF=1:PRINT:PRINT
300 C=C+192:AA=AA+1
305 IF AA>=5 THEN 320
310 IF AA=1 AND LK<>2 PRINT ELSE IF AA=3 PRINT
315 GOSUB130:GOTO190
320 TS=AA+TS:AA=1:LK=0
330 C=65
340 GOSUB1150:CLS
345 GOSUB400:PRINT:PRINT:C=C+192:GOTO315
350 IF JK=1 GOSUB400
360 GOTO230
```

```
400 I=1
410 PRINT Q$(I)+X$;
420 IF I<=6 THEN I=I+1:GOTO410
425 FOR E=1TO6:L(E)=K(E):K(E)=E:NEXT:XC=1
430 PRINT@(C-64)+50,"ORIGINAL";:IF JK=1 RETURN
431 IF XC<>1 RETURN
435 GOSUB150
440 REM
445 XC=0
450 FOR E=1TO6:K(E)=L(E):NEXT
460 RETURN
500 TH=TH+1:TT(TH)=H
510 IF TH>=2 AND TT(1)>=TT(2) THEN 540
520 IF TH>=2 AND TT(2)>=TT(1) THEN 530
525 GOTO570
530 TT(1)=TT(2):HG=0
540 TH=TH-1
550 IF HG=1 RETURN
570 MB=1
580 R$(MB)=A$(MB)
590 TY(MB)=K(MB)
600 MB=MB+1
610 IF MB<=6 THEN 580
620 HG=1
630 RETURN
700 REM HIGHEST NUMBER PER ATTEMPT
710 PRINT:PRINT
720 FOR MB=1TO6
730 PRINT R$(MB)+X$;
740 NEXT
750 PRINT
760 FOR MB=1TO6
770 PRINT" ";TY(MB);"   ";
780 NEXT
790 PRINT
800 PRINT
810 PRINT"HIGHEST CORRECT =";TT(1)
820 PRINT"PRESS ENTER TO CONTINUE";
830 INPUT I$
840 CLS
850 C=65
860 RETURN
900 AA=0
910 I=1
```

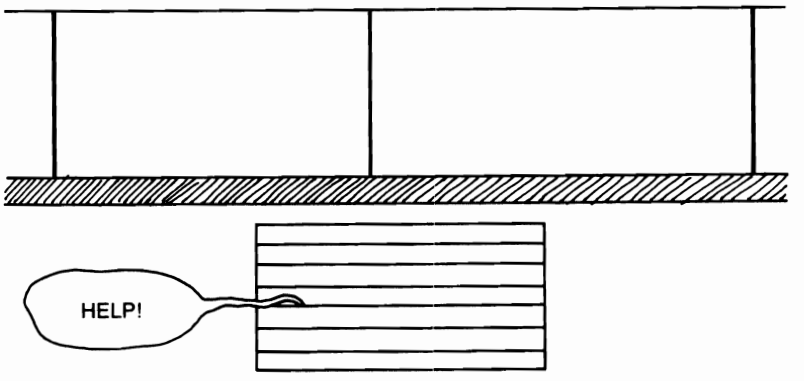
```
920 A$=""
930 LK=2
940 GOTO240
1000 REM PRINT CORRECT
1010 PRINT@(A-128)+70,H;" CORRECT";
1015 IF H=6 THEN 1100
1020 H=0:RETURN
1100 TS=TS+AA:PRINT
1105 PRINT:PRINT
1110 PRINT TAB(10);"YOU HAVE FIGURED OUT THE CODE
1120 PF=1:DD=DD+1:GOTO1450
1150 FOR HL=1TO1000:NEXT
1160 RETURN
1200 REM COMPUTERS PLAY
1201 IF AA=0 AND JK=1 GOSUB430:PRINT
1203 FOR T=1TO6:D(T)=T:NEXT
1205 RM=1:T=1:I=1:JJ=JM
1208 IF V(T)=0 THEN 1225
1210 U(T)=RND(JJ)
1215 IF D(U(T))=0 THEN 1210
1218 B=U(T)
1220 IF B=Q(T) THEN M(T)=B:GOTO1296
1225 IF R(T)=6 AND RR=0 GOSUB1400
1226 IF R(T)=5 AND RR=1 GOSUB1400
1227 IF R(T)=4 AND RR=2 GOSUB1400
1228 A$(I)=W$(M(T))
1229 IF A$(I)="" THEN A$(I)=STRING$(6,P(T))
1230 D(U(T))=0
1235 T=T+1:I=I+1
1240 IF T<=6 THEN 1208
1245 IF Y=6 THEN 1300
1250 IF Y=5 THEN RR=0:GOTO1203
1260 H=0:AA=AA+1
1270 PRINT:PRINT:GOSUB130
1275 PRINT@A+64+70,Y;" CORRECT";
1280 C=C+192
1281 CC=CC+1
1285 IF AA>=5 THEN 1287
1286 GOTO1292
1287 C=65:GOSUB1150:CLS
1290 GOSUB400:AA=1
1292 IF JK=1 PRINT
1295 GOTO230
1296 R(T)=M(T):V(T)=0
```

```
1297 Y=Y+1
1298 GOTO1225
1300 PRINT:PRINT
1310 PRINT TAB(3);"I HAVE FIGURED OUT THE CORRECT
     SEQUENCE."
1320 UP=1
1330 DE=DE+1
1340 GOTO1450
1400 R(T)=0
1410 JM=JM-1:JJ=JM
1420 IF RR=0 RR=1:RETURN
1430 IF RR=1 RR=2:RETURN
1440 IF RR=2 RR=0:RETURN
1450 PRINT TAB(12);"THE CORRECT SEQUENCE IS:"
1460 FOR I=1TO6
1465 IF PF=1 PRINT Q$(Q(I))+X$;:NEXT:GOTO1480
1470 PRINT W$(M(I))+X$;:NEXT
1480 PRINT:PF=0:TB=1
1490 FOR I=1TO6:PRINT TAB(TB);Q(I);:TB=TB+7:NEXT
1600 IF UP=1 UP=0:GOTO1650
1610 PRINT
1620 PRINT TAB(13);"TOTAL ATTEMPTS =";TS
1630 GOTO1670
1650 PRINT:CC=CC+1
1655 IF CC=0 CC=1
1660 PRINT TAB(13);"TOTAL ATTEMPTS =";CC
1670 GOSUB1150
1675 GP=GP+1
1680 PRINT:PRINT
1690 PRINT TAB(15);"GAMES PLAYED =";GP
1695 IF JK=1 THEN 1900
1700 PRINT"YOU'VE WON: ";DD;
1710 PRINT TAB(32);"I HAVE WON: ";DE
1720 PRINT TAB(15);
1730 INPUT"PLAY AGAIN";I$
1740 IF I$="YES" THEN 1980
1750 PRINT
1760 PRINT TAB(13);"END OF PROGRAM RUN....."
1770 END
1800 REM ANOTHER GAME
1810 CLS
1820 FOR I=1TO6
1830 R$(I)=""
1840 TY(I)=0
1850 NEXT
```

```
1860 TH=0:LK=0
1870 GOTO20
1900 TU=RND(2)
1910 ON TU GOTO 1915,1935
1915 PRINT
1920 PRINT TAB(10);"I THINK I'LL PLAY ANOTHER....."
1930 FOR JH=1TO1250:NEXT:GOTO1980
1935 PRINT
1940 PRINT TAB(8);"I'VE HAD ENOUGH PLAYING BY
     MYSELF..."
1950 PRINT TAB(12);"SO I'M ENDING THIS PROGRAM."
1960 PRINT
1970 GOTO1750
1980 FOR I=1TO6
1990 A$(I)=""
2000 M(I)=0
2010 NEXT
2020 GOTO1800
2100 CLS
2110 PRINT TAB(15);"CHALLENGE YOUR COMPUTER"
2120 PRINT
2130 PRINT"SEE THE INSTRUCTIONS";
2140 INPUT I$
2150 IF I$="NO" RETURN
2160 PRINT
2170 PRINT"THIS PROGRAM WILL LET YOU CHALLENGE"
2180 PRINT"YOUR COMPUTER, OR YOU CAN LET"
2190 PRINT"THE COMPUTER PLAY BY ITSELF."
2200 PRINT"IT IS A NUMBERS GAME,"
2210 PRINT"BUT WITH A NEW TWIST: THE NUMBERS 1-6"
2220 PRINT"WILL BE USED ALONG WITH CHARACTER
     CODES"
2230 PRINT"THAT WILL BE RANDOMLY SELECTED
     FROM 174"
2240 PRINT"TO 191."
2250 PRINT
2260 PRINT"PRESS ENTER";
2270 INPUT X:CLS
2280 PRINT
2290 PRINT"YOU WILL PLAY FIRST. YOU WILL INPUT"
2300 PRINT"YOUR GUESS CONCERNING HOW"
2310 PRINT"THESE NUMBERS ARE RANDOMLY
     ARRANGED"
2320 PRINT"IN THE COMPUTER'S MEMORY. ENTRY OF"
2330 PRINT"THESE NUMBERS WILL USE THE INKEY$"
```

```
2340 PRINT"FUNCTION, SO DON'T PRESS ENTER."
2350 PRINT"AFTER YOU INPUT YOUR NUMBERS THE
     COMPUTER"
2360 PRINT"WILL PRINT THE NUMBER YOU HAVE"
2370 PRINT"CORRECT (IF ANY). THE COMPUTER WILL
     THEN"
2380 PRINT"PLAY, BUT, IT WILL NOT PRINT ITS"
2390 PRINT"NUMBER SELECTION; IT WILL ONLY PRINT"
2400 PRINT"THE CHARACTERS PERTAINING TO THE
     NUMBERS."
2410 PRINT
2420 PRINT"PRESS ENTER";
2430 INPUT X:CLS
2440 PRINT
2450 PRINT"YOU CAN LOOK AT THE COMPUTER'S
     SELECTION"
2460 PRINT"TO TRY AND UNSCRAMBLE THE CODE,"
2470 PRINT"BUT, YOU MIGHT BE FOOLED!!"
2480 PRINT"THE OBJECT IS TO UNSCRAMBLE THE CODE"
2490 PRINT"BEFORE THE COMPUTER DOES."
2500 PRINT"OH YES, IF YOU DON'T WANT TO CHALLENGE"
2510 PRINT"THE COMPUTER, JUST ANSWER THE
     APPROPRIATE"
2520 PRINT"QUESTION WITH A 'NO' AND THE COMPUTER"
2530 PRINT"WILL PLAY BY ITSELF."
2540 PRINT
2550 PRINT"PRESS ENTER";
2560 INPUT X:PRINT
2570 PRINT"TO SEE YOUR 'NUMBER OF CORRECT ENTRIES'"
2580 PRINT"HIT THE 'H' KEY WHEN IT IS"
2590 PRINT"YOUR TURN TO PLAY."
2600 PRINT
2610 INPUT"PRESS ENTER TO PLAY";X
2620 RETURN
```

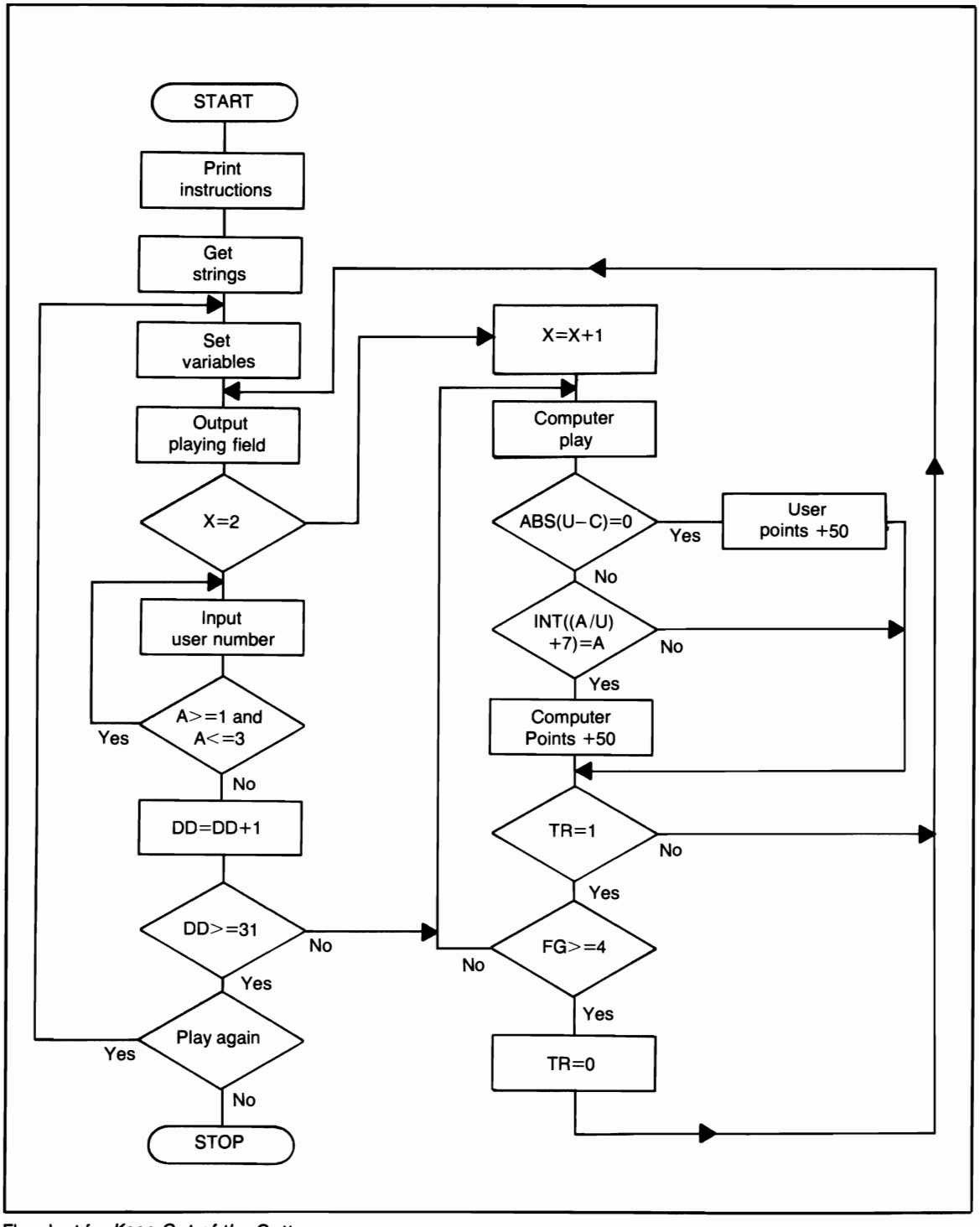
KEEP OUT OF THE GUTTER



Just use your head and you'll probably still end up in the gutter! Think before you enter a number between 4 and 9—try to match the computer's numbers—and you might even win after a total of 30 rounds has been played. Press the ENTER key at anytime to see total number of rounds played and the number of points you and your computer have.

Sample Run

```
        + KEEP OUT OF THE GUTTER +

INSTRUCTIONS ARE AS FOLLOWS:
"KEEP OUT OF THE GUTTER" IS A FAST-
PACED GAME THAT WILL INVOLVE
YOU AND YOUR COMPUTER.
AFTER READING THE INSTRUCTIONS
AND PRESSING ENTER YOU WILL
SEE TWO BLOCKS. WITHIN THESE
BLOCKS WILL BE NUMBERS (THE TOP
BLOCK IS YOURS—THE BOTTOM, THE
COMPUTER'S). WHAT YOU MUST DO IS
MATCH THE COMPUTER'S NUMBERS TO
GAIN POINTS (50 POINTS PER MATCH).

PRESS ENTER?

FOR INSTANCE, WHEN THE COMPUTER
PRINTS 'ENTER NUMBER' YOU MUST
ENTER A NUMBER GREATER THAN OR
```



Flowchart for *Keep Out of the Gutter*

```
EQUAL TO 4, OR LESS THAN OR EQUAL TO 9
(PRESS ENTER INSTEAD OF A NUMBER.
TO SEE TOTAL SCORES & ROUNDS).
IF YOU ENTER A 5, THE BLOCKS WILL
'SCROLL' UPWARD TO TWO NEW BLOCKS
YOUR NUMBERS WILL BE 1,2,3,4,5.
IF YOU MATCH THE COMPUTER YOU'LL
GET 50 POINTS. IF THE COMPUTER
MATCHES YOU, YOU'LL BE PUT INTO
THE GUTTER. IF AND WHEN YOU END
IN THE GUTTER, DO NOTHING, THE
COMPUTER WILL PLAY BY ITSELF

PRESS ENTER?

UNTIL IT IS READY TO REMOVE YOU
FROM THE GUTTER.
30 ROUNDS IS THE GAME.
THE PLAYER WITH THE HIGHEST
SCORE WILL THEN BE DECLARED
THE WINNER.
----------------------
=          0         =
=          1         =
=          2         =
=          3         =
=          4         =
----------------------
----------------------
=          2         =
=          3         =
=          4         =
=          5         =
=          6         =
----------------------
   ENTER NUMBER?
------------------------
=          2           =
=          3           =
=          4           =
=          5           =
=          6           =
------------------------
------------------------
=          0           =
=          1           =
=          2           =
```

```
=          3          =
=          4          =
---------------------
   ENTER NUMBER?
---------------------
=          4          =
=          5          =
=          6          =
=          7          =
=          8          =
---------------------
** ACCUMULATED POINTS **
YOURS = 50
COMPUTER'S = 0
TOTAL ROUNDS PLAYED = 3
PRESS ENTER TO RESUME?
---------------------
=          0          =
=          1          =
=          2          =
=          3          =
=          4          =
---------------------
   ENTER NUMBER?
---------------------
=          0          =
=          1          =
=          2          =
=          3          =
=          4          =
-----------------------
-----------------------
=          2          =
=          3          =
=          4          =
=          5          =
=          6          =
-----------------------
   ENTER NUMBER?
-----------------------
=          5          =
=          6          =
=          7          =
=          8          =
=          9          =
-----------------------
```

```
-------------------------
=          0            =
=          1            =
=          2            =
=          3            =
=          4            =
-------------------------
    ENTER NUMBER?
-------------------------
=          4            =
=          5            =
=          6            =
=          7            =
=          8            =
-------------------------
-------------------------
=          0            =
=          1            =
=          2            =
=          3            =
=          4            =
-------------------------
    ENTER NUMBER?
-------------------------
=          3            =
=          4            =
=          5            =
=          6            =
=          7            =
-------------------------
=          0            =
=          1            =
=          2            =
=          3            =
=          4            =
-------------------------
    ENTER NUMBER?
-------------------------
=          2            =
=          3            =
=          4            =
=          5            =
=          6            =
-------------------------
** ACCUMULATED POINTS **
YOURS = 100
COMPUTER'S = 0
```

```
TOTAL ROUNDS PLAYED = 8
PRESS ENTER TO RESUME?
-------------------------
=          0          =
=          1          =
=          2          =
=          3          =
=          4          =
-------------------------
  ENTER NUMBER?
-------------------------
=          1          =
=          2          =
=          3          =
=          4          =
=          5          =
-------------------------
///// STOP /////
```

Program Listing

```
10 REM PROGRAM TITLE:
20 REM KEEP OUT OF THE GUTTER
30 CLS:IF RT=1 THEN 300
40 PRINT TAB(15);"+ KEEP OUT OF THE GUTTER +"
50 PRINT
60 PRINT"INSTRUCTIONS ARE AS FOLLOWS:
70 PRINT"'KEEP OUT OF THE GUTTER' IS A FAST"
80 PRINT"PACED GAME THAT WILL INVOLVE"
90 PRINT"YOU AND YOUR COMPUTER."
100 PRINT"AFTER READING THE INSTRUCTIONS"
105 PRINT"AND PRESSING ENTER YOU WILL"
110 PRINT"SEE TWO BLOCKS. WITHIN THESE"
115 PRINT"BLOCKS WILL BE NUMBERS (THE TOP"
120 PRINT"BLOCK IS YOUR'S - THE BOTTOM, THE
    COMPU-"
125 PRINT"TER'S). WHAT YOU MUST DO IS MATCH"
130 PRINT"THE COMPUTER'S NUMBERS TO GAIN"
135 PRINT"POINTS (50 POINTS PER MATCH)."
140 INPUT"PRESS ENTER";XX
145 CLS
150 PRINT"FOR INSTANCE, WHEN THE COMPUTER"
155 PRINT"PRINTS 'ENTER NUMBER' YOU MUST"
```

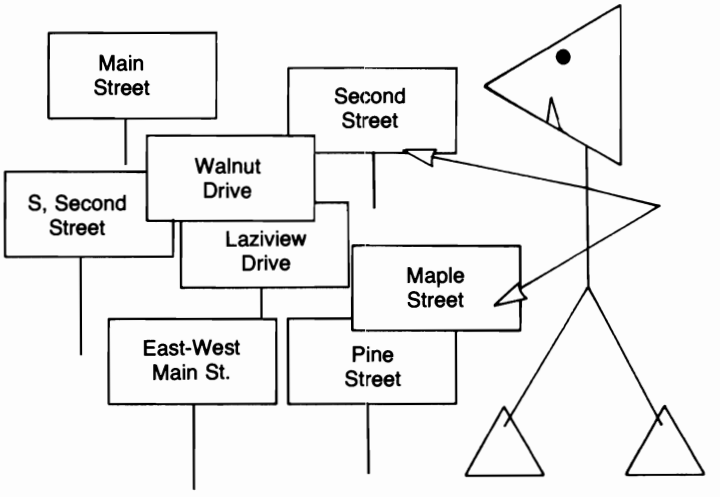
```
160 PRINT"ENTER A NUMBER GREATER THAN OR
    EQUAL"
165 PRINT"TO 4 OR LESS THAN OR EQUAL TO 9"
170 PRINT"(PRESS ENTER INSTEAD OF A NUMBER"
175 PRINT"TO SEE TOTAL SCORES & ROUNDS)."
180 PRINT"IF YOU ENTER A 5, THE BLOCKS WILL"
185 PRINT"'SCROLL' UPWARD TO TWO NEW BLOCKS"
190 PRINT"YOUR NUMBER'S WILL BE 1,2,3,4,5."
195 PRINT"IF YOU MATCH THE COMPUTER YOU'LL"
200 PRINT"GET 50 POINTS. IF THE COMPUTER"
205 PRINT"MATCHES YOU, YOU'LL BE PUT INTO"
210 PRINT"THE GUTTER. IF AND WHEN YOU END"
215 PRINT"IN THE GUTTER, DO NOTHING, THE"
220 PRINT"COMPUTER WILL PLAY BY ITSELF"
222 INPUT"PRESS ENTER";XX:CLS
225 PRINT"UNTIL IT IS READY TO REMOVE YOU"
230 PRINT"FROM THE GUTTER."
235 PRINT"30 ROUNDS IS THE GAME."
240 PRINT"THE PLAYER WITH THE HIGHEST"
245 PRINT"SCORE WILL BE DECLARED"
250 PRINT"THE WINNER.":PRINT
255 INPUT"PRESS ENTER NOW TO START";XX
260 CLS
300 Q$=CHR$(45)
310 W$=CHR$(61)
320 DD=1:J=1:A=4
400 REM IF YOU FIND IT DIFFICULT
410 REM TO GAIN POINTS REMEMBER
420 REM THIS:
430 REM IF THE COMPUTER'S NUMBERS
440 REM TURN UP 3,4,5,6,7 THE FIRST
450 REM TIME AND 2,3,4,5,6 THE
460 REM SECOND TIME, YOU'LL KNOW THAT
470 REM THE THIRD TIME IT WILL
480 REM BE 1,2,3,4,5. IF YOU CAN'T FIGURE
490 REM OUT WHAT TO ENTER TO MATCH
495 REM AFTER THAT...TRY ANOTHER GAME !!
500 REM PRINT PLAYING FIELD
505 P=(A-5)
510 FOR I=1TO20
520 PRINT Q$;:NEXT:PRINT
530 FOR I=1TO5:PRINT W$;
540 P=P+1
545 PRINT TAB(8);P;
550 PRINT TAB(20);W$;
```

```
560 PRINT:NEXT
570 FOR I=1TO20
580 PRINT Q$;:NEXT
585 IF TR=1 AND FG<>0 THEN X=1:GOTO900
590 X=X+1:IF X=2 THEN 600
595 PRINT:GOTO1300
600 A$=INKEY$:IF A$="" THEN 600
620 A=VAL(A$)
630 REM USER INPUT ENOUGH ?
640 IF A>=1 AND A<=3 THEN 600
650 IF A=0 THEN 700
660 PRINT
670 X=0:DD=DD+1:IF DD>=31 THEN 820
680 IF A=0 A=4
690 U=A:GOTO500
700 CLS
710 PRINT CHR$(23)
720 PRINT"** ACCUMULATED POINTS **"
730 PRINT
740 PRINT"YOURS =";T1
750 PRINT"COMPUTER'S =";T2
760 PRINT
770 PRINT"TOTAL ROUNDS PLAYED =";DD
780 PRINT:INPUT"PRESS ENTER TO RESUME";X$
790 CLS
800 IF DD>=31 THEN 820
810 GOTO660
820 PRINT:PRINT
825 PRINT"END OF GAME RUN....."
830 IF T1=T2 THEN 850
835 IF T1>T2 THEN 865
840 PRINT"YOU HAVE LOST TO"
845 PRINT"YOUR COMPUTER....":GOTO880
850 PRINT"EVERYTHING TURNED OUT EQUAL."
855 PRINT"A TIE WITH YOUR COMPUTER."
860 GOTO880
865 PRINT"VERY WELL, YOU HAVE BEAT"
870 PRINT"YOUR COMPUTER, THIS TIME."
880 PRINT"FINAL SCORE, YOURS =";T1
885 PRINT"COMPUTER'S =";T2
890 PRINT:GOTO1240
900 REM COMPUTER'S PLAY
910 PRINT
920 IF G=1 THEN 1040
```

```
930 I=RND(9):IF I<=3 THEN 930
940 IF J>=11 THEN J=1
950 A(J)=I
960 C=A(J)
965 IF ABS(U-C)=0 THEN 1200
970 J=J+1:IF J>=3 THEN 990
980 A=C:GOTO1100
990 C1=A(J-2):C2=A(J-1)
1000 C3=ABS(C1-C2)
1010 IF C3<=1 THEN 1030
1020 GOTO980
1030 C=C2
1040 IF C<=5 THEN 1080
1050 C=C-1
1060 G=1
1070 A=C:GOTO500
1080 G=0:J=1
1090 GOTO920
1100 REM FOR DOUBLE
1110 IF U<=0 THEN 1130
1120 IF INT((A/U)+7)=A THEN 1140
1130 GOTO500
1140 T2=T2+50
1150 IF T2>=A THEN 1170
1160 T2=INT(A/U)*50
1170 TR=1
1180 GOTO1300
1200 REM USER POINTS
1205 IF FG<>0 THEN 1220
1210 T1=T1+50
1220 IF TR=1 TR=0:FG=0:GOTO1360
1230 GOTO970
1240 INPUT"PLAY AGAIN";T$
1250 IF LEFT$(T$,1)="N" THEN 1270
1260 T1=0:T2=0:RT=1:GOTO10
1270 PRINT"<<< END OF GAME >>>"
1280 END
1300 REM USER TO REMAIN IN
1310 REM GUTTER UNTIL COUNTER
1320 REM FG REACHES 4 OR BETTER
1325 IF FG>=4 THEN TR=0:FG=0
1330 IF TR=0 THEN 1360
1340 PRINT TAB(5);"* GUTTER *";
```

```
1350 FG=FG+1.5:PRINT:GOTO500
1360 PRINT TAB(3);"ENTER NUMBER ?";
1370 GOTO900
```

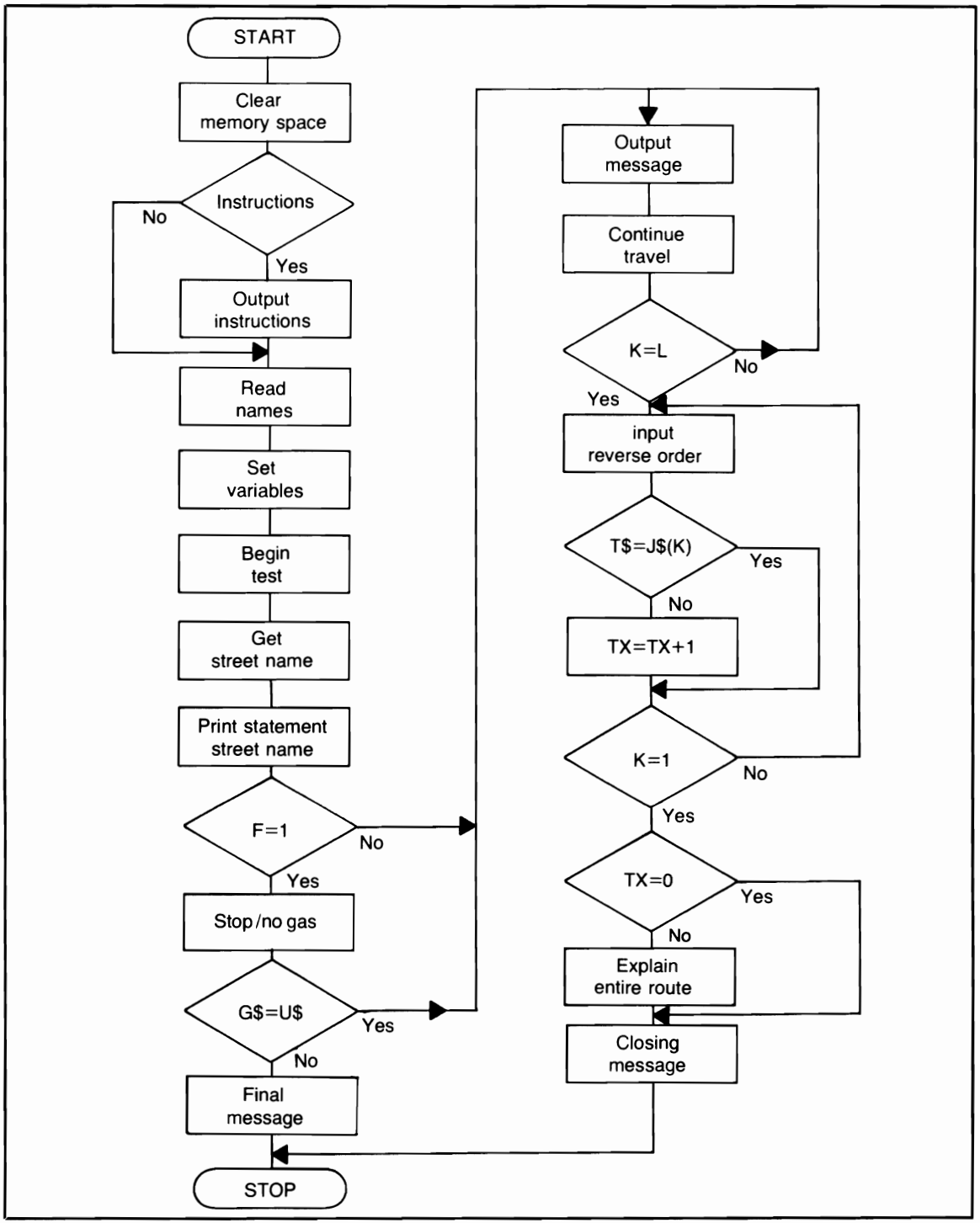
(MOTION) SENSE OF DIRECTION



Do you have a problem getting through a certain town? You will probably still have that same problem after you finish this game. Really though, the computer will take you into a town for a simple bite to eat. All you need do to get out of that town and back on your journey is to tell the computer every street you went on, in reverse order! Hope you don't run out of gas!!!

Sample Run

```
* SENSE OF DIRECTION *

INSTRUCTIONS REQUIRED? YES

JUST ABOUT EVERYONE HAS HAD THE
OPPORTUNITY TO TRAVEL INTO A
NEW TOWN, AT ONE TIME OR ANOTHER.
AND A FEW OF THESE PEOPLE FIND
THEMSELVES LOST TRYING TO
LOCATE A CERTAIN LANDMARK OR
HIGHWAY.
THAT IS WHAT THIS PROGRAM IS
ALL ABOUT. THE COMPUTER WILL
TEST YOUR SENSE OF DIRECTION.

:: ENTER ::?

THE COMPUTER WILL TAKE YOU INTO
```



Flowchart for *(Motion) Sense of Direction*

A TOWN, AND 'DRIVE' YOU AROUND
AWHILE, NAMING THE DIFFERENT
STREETS AS IT GOES. IT WILL
THEN ASK YOU TO INPUT THOSE
STREET NAMES BACKWARD TO END UP
BACK WHERE YOU STARTED.
YOU ALSO MIGHT BE IN FOR A FEW
DIFFERENT SURPRISES.

PRESS ENTER NOW TO BEGIN
YOUR TEST?

YOU ARE TRAVELING DOWN
HIGHWAY 27. WITHIN MINUTES YOU
WILL COME UPON EAST MAIN STREET.

YOU WILL TRAVEL DOWN THIS STREET
FOR AT LEAST 3 BLOCKS. THEN
YOU WILL COME ONTO THIRD STREET.

THIS IS A TRICKY NAME, SO DON'T
GET IT MIXED UP WITH THE
NEXT STREET NAME.

WITHIN MINUTES YOU WILL ARRIVE
AT NORTH FIRST STREET.

THIS STREET WAS RECENTLY REPAVED
SO IT SHOULDN'T CAUSE TOO MUCH
TROUBLE FOR YOUR CAR.

YOU ARE NOW COMING UPON A GAS
STATION AT EAST WESTCHESTER STREET.

REMEMBER IT IF YOU NEED GAS OR
REPAIRS, IT'S THE ONLY ONE
IN THIS TOWN.

GETTING CLOSE TO THE FINAL
STRETCH, HERE COMES SOUTH SECOND STREET.

THIS STREET HAS A VERY SCENIC
VIEW RIGHT AROUND CHRISTMAS TIME.

```
DRIVE WEST UNTIL YOU REACH
DIAMOND STREET.

THERE YOU CAN BUY THE FAMILY
A GOOD LUNCH, TAKE A LONG
BREAK AND RETURN TO THE
HIGHWAY TO CONTINUE YOUR TRIP.

PRESS ENTER AFTER YOU HAVE
FINISHED YOUR LUNCH?

FINISHED ALREADY???

WE ARE NOW READY TO RETURN
TO HIGHWAY 27. YOU MUST
ENTER ALL OF THE STREET NAMES
IN REVERSE ORDER.
BEGIN AT THE STREET WHERE YOU
HAD LUNCH, THEN WORK BACK TO
THE HIGHWAY. YOU DON'T HAVE
TO ENTER THE WORD 'STREET',
JUST THE NAME OF IT.
? DIAMOND STREET
O.K. CONTINUE YOUR ENTRIES.
? SOUTH SECOND
? PINE
? MAPLE
? EAST MAIN
? WEST MAIN
WHICH RETURNS US TO HIGHWAY? 27

YOU HAVE MISSED 5 STREETS.
FOR A SIMPLE EXPLANATION OF
YOUR ROUTE...STAND BY.

YOU STARTED ON EAST MAIN STREET.
THEN PROCEEDED TO THIRD STREET,
WHERE YOU CAME UPON NORTH FIRST STREET.
REMEMBER IT WAS REPAVED???
YOUR 4TH STREET WAS EAST WESTCHESTER STREET.
(THE GAS STATION??)

PRESS ENTER?
```

```
THE NEXT STREET YOU ENCOUNTERED
WAS SOUTH SECOND STREET.
WHERE YOU AND YOUR FAMILY HAD
LUNCH ON DIAMOND STREET.
FINALLY, THE HIGHWAY YOU STARTED
ON AND WANTED TO RETURN TO WAS
HIGHWAY # 27

SORRY.....

END OF PROGRAM RUN.
```

Program Listing

```
10 REM PROGRAM TITLE:
20 REM (MOTION) SENSE OF DIRECTION
30 CLS:RANDOM:CLEAR 500
40 PRINT TAB(15);
50 PRINT"* SENSE OF DIRECTION *"
60 PRINT
70 INPUT"INSTRUCTIONS REQUIRED";V$
80 IF MID$(V$,2,1)<>"E" THEN 320
90 PRINT"JUST ABOUT EVERYONE HAS HAD THE"
100 PRINT"OPPORTUNITY TO TRAVEL INTO A"
110 PRINT"NEW TOWN, AT ONE TIME OR ANOTHER,"
120 PRINT"AND A FEW OF THESE PEOPLE FIND"
130 PRINT"THEMSELVES LOST TRYING TO"
140 PRINT"LOCATE A CERTAIN LANDMARK OR"
150 PRINT"HIGHWAY."
160 PRINT"THAT IS WHAT THIS PROGRAM IS"
170 PRINT"ALL ABOUT. THE COMPUTER WILL"
180 PRINT"TEST YOUR SENSE OF DIRECTION."
190 PRINT:INPUT":: ENTER ::";X
200 CLS
210 PRINT"THE COMPUTER WILL TAKE YOU INTO"
220 PRINT"A TOWN AND 'DRIVE' YOU AROUND"
230 PRINT"AWHILE, NAMING THE DIFFERENT"
240 PRINT"STREETS AS IT GOES. IT WILL"
270 PRINT"THEN ASK YOU TO INPUT THOSE"
280 PRINT"STREET NAMES BACKWARD TO END UP"
290 PRINT"BACK WHERE YOU STARTED."
300 PRINT"YOU ALSO MIGHT BE IN FOR A FEW"
310 PRINT"DIFFERENT SURPRISES."
```

```
320 PRINT
330 PRINT"PRESS ENTER NOW TO BEGIN"
340 INPUT"YOUR TEST";X
350 CLS
360 DIM K(17),L$(17)
370 REM READ STREET NAMES
380 FOR I=1TO17:K(I)=I
390 READ L$(I):NEXT
400 S$="STREET"
500 REM BEGIN THE TEST
510 REM RANDOM SELECT HIGHWAY
520 REM NUMBER TO START
540 REM STREET TEST
550 H=RND(50)
560 PRINT"YOU ARE TRAVELLING DOWN"
570 PRINT"HIGHWAY";H;". WITHIN MINUTES YOU"
580 PRINT"WILL COME UPON ";
590 REM FOR RANDOM STREET NAME
600 GOSUB4000
610 L=L+1
620 PRINT"YOU WILL TRAVEL DOWN THIS STREET"
630 PRINT"FOR AT LEAST 3 BLOCKS. THEN"
640 PRINT"YOU WILL COME ONTO ";
650 GOSUB4000:L=L+1
660 PRINT"THIS IS A TRICKY NAME, SO DON'T"
670 PRINT"GET IT MIXED UP WITH THE"
680 PRINT"NEXT STREET NAME!"
690 GOSUB4090
700 PRINT"WITHIN MINUTES YOU WILL ARRIVE"
710 PRINT"AT ";
720 GOSUB4000:L=L+1
730 PRINT"THIS STREET WAS RECENTLY REPAVED"
740 PRINT"SO IT SHOULDN'T CAUSE TO MUCH"
750 PRINT"TROUBLE FOR YOUR CAR."
760 GOSUB4090
770 PRINT"YOU ARE NOW COMING UPON A GAS"
780 PRINT"STATION AT ";
790 GOSUB4000:U$=J$(L):L=L+1
800 PRINT"REMEMBER IT IF YOU NEED GAS OR"
810 PRINT"REPAIRS, IT'S THE ONLY ONE"
820 PRINT"IN THIS TOWN."
830 GOSUB4090
840 PRINT"GETTING CLOSE TO THE FINAL"
850 PRINT"STRETCH, HERE COMES ";
```

```
860 GOSUB4000:M$=J$(L):L=L+1
870 PRINT"THIS STREET HAS A VERY SCENIC"
880 PRINT"VIEW RIGHT AROUND CHRISTMAS TIME."
890 GOSUB4090:GOTO4150
900 INPUT"WHY ARE YOU STOPPING";X$
910 FOR Y=1TOLEN(X$)
920 IF MID$(X$,Y,3)="GAS" THEN 940
930 NEXT:PRINT"YOU ARE OUT OF GAS."
935 PRINT"WHICH STREET WAS THAT SMALL"
938 GOTO960
940 PRINT"THAT'S RIGHT, YOU ARE OUT"
950 PRINT"OF GAS. WHICH STREET WAS THE"
960 INPUT"GAS STATION LOCATED ON";G$
970 IF G$<>U$ THEN 1010
980 PRINT"VERY WELL...YOU ARE PAYING"
990 PRINT"SOME ATTENTION."
1000 GOTO1050
1010 PRINT"NO ";G$;" ";S$;" IS NOT THE"
1020 PRINT"LOCATION OF THE GAS STATION."
1030 PRINT"YOU ARE STRANDED BUDDY !!!"
1040 GOTO1840
1050 J$(L)=U$:L=L+1:J$(L)=M$:GOSUB4090
1060 PRINT"AFTER REFUELING ON ";U$
1065 PRINT"GET BACK ON ";M$;" AND"
1070 PRINT"DRIVE WEST UNTIL YOU REACH"
1080 L=L+1:GOSUB4000:K=L
1090 PRINT"THERE YOU CAN BUY THE FAMILY"
1100 PRINT"A GOOD LUNCH, TAKE A LONG"
1110 PRINT"BREAK AND RETURN TO THE"
1120 PRINT"HIGHWAY TO CONTINUE YOUR TRIP."
1130 PRINT
1140 PRINT"PRESS ENTER AFTER YOU HAVE"
1150 INPUT"FINISHED YOUR LUNCH";X
1160 PRINT"FINISHED ALREADY ???"
1170 GOSUB4090
1180 GOSUB4090
1190 PRINT"WE ARE NOW READY TO RETURN"
1200 PRINT"TO HIGHWAY";H;". YOU MUST"
1210 PRINT"ENTER ALL OF THE STREET NAMES"
1220 PRINT"IN REVERSE ORDER."
1230 PRINT"BEGIN AT THE STREET WHERE YOU"
1240 PRINT"HAD LUNCH, THEN WORK BACK TO"
1250 PRINT"THE HIGHWAY. YOU DON'T HAVE"
1260 PRINT"TO ENTER THE WORD 'STREET',"
```

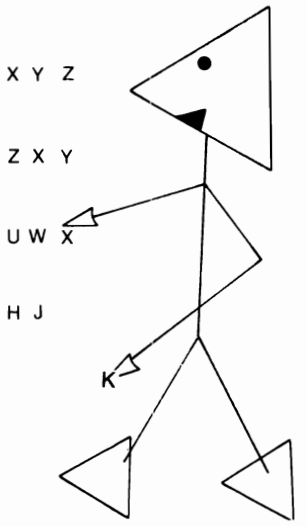
```
1270 PRINT"JUST THE NAME OF IT."
1280 REM REVERSE ORDER
1290 REM OF STREETS
1300 INPUT T$
1310 IF T$<>J$(K) THEN TX=TX+1
1320 IF F=1 THEN 1340
1330 GOTO1380
1340 PRINT"ENTER THE STREET YOU WERE
1350 PRINT"ON WHEN YOU RAN OUT OF GAS."
1360 INPUT T$
1370 IF T$<>M$ THEN TX=TX+1
1380 GOSUB4130:K=K-1
1390 PRINT"O.K. CONTINUE YOUR ENTRYS."
1400 IF K=-1 THEN 1450
1410 INPUT T$
1420 IF T$<>J$(K) THEN TX=TX+1
1430 GOSUB4130
1440 GOTO1400
1450 PRINT
1460 INPUT"WHICH RETURNS US TO HIGHWAY";HH
1470 IF HH<>H THEN 1490
1480 GOTO1520
1490 PRINT"YOU ARE ON THE WRONG HIGHWAY !!"
1500 PRINT"KEEP GOING...I'LL GET OFF HERE."
1510 GOTO1840
1520 IF TX=0 THEN 1800
1530 PRINT"YOU HAVE MISSED";TX;"STREETS."
1540 PRINT"FOR A SIMPLE EXPLANATION OF"
1550 PRINT"YOUR ROUTE...STAND BY."
1560 GOSUB4090
1570 U=0
1580 PRINT"YOU STARTED ON ";
1585 GOSUB4200
1590 PRINT"THEN PROCEEDED TO ";
1595 GOSUB4200
1600 PRINT"WHERE YOU CAME UPON ";
1605 GOSUB4200
1610 PRINT"REMEMBER IT WAS REPAVED ???"
1620 PRINT"YOUR 4TH STREET WAS ";
1630 GOSUB4200
1640 PRINT"(THE GAS STATION ??)"
1645 INPUT"PRESS ENTER";X:CLS
1650 PRINT"THE NEXT STREET YOU ENCOUNTERED"
1660 PRINT"WAS ";:GOSUB4200
```

```
1670 IF F=0 THEN GOSUB4210:GOTO1720
1680 PRINT"YOU RAN OUT OF GAS THERE, AND"
1690 PRINT"HAD TO GO BACK TO ";:GOSUB4200
1700 PRINT"AFTER FILLING UP, YOU GOT BACK"
1710 PRINT"ONTO ";:GOSUB4200
1720 PRINT"YOU AND YOUR FAMILY HAD"
1730 PRINT"LUNCH ON ";:GOSUB4200
1740 PRINT"FINALLY, THE HIGHWAY YOU STARTED"
1750 PRINT"ON AND WANTED TO RETURN TO WAS:"
1760 PRINT"HIGHWAY #";H
1770 PRINT:PRINT"SORRY....."
1780 GOTO1840
1800 REM ALL CORRECT
1810 PRINT"CONGRATULATIONS !!!"
1820 PRINT"YOU HAVE ENTERED ALL STREETS"
1830 PRINT"IN THEIR PROPER ORDER..."
1840 PRINT
1850 PRINT"END OF PROGRAM RUN."
1860 END
4000 REM SELECT STREETS
4010 REM RANDOM FUNCTION
4020 Q=RND(17)
4030 IF K(Q)=0 THEN 4020
4040 J$(L)=L$(Q)
4050 K(Q)=0
4060 REM STREET TITLES EXHAUSTED
4070 REM WHERE L>=17
4080 PRINT J$(L);" ";S$;","
4090 FOR TT=1TO2000:NEXT
4100 FOR TT=1TO6
4110 PRINT:NEXT
4120 RETURN
4130 K=K-1
4140 RETURN
4150 REM STOP, NO GAS ?
4160 D=RND(10)
4170 IF INT((D-L)+INT(D-L-I))=L THEN 4190
4180 F=1:GOTO900
4190 GOSUB4100:PRINT:PRINT:GOTO1070
4200 PRINT J$(U);" ";S$;","
4210 U=U+1
4220 RETURN
5000 DATA SOUTH SECOND,MAIN,EAST MAIN
5010 DATA TURTLE DRIVE,EAST WESTCHESTER
```

```
5020 DATA NORTH FIRST,NORTH THIRD,THIRD
5030 DATA MAPLE,PINE,RIDDLE,UPPER COAST
5040 DATA LOWER COAST,CLEARVIEW
5050 DATA DIAMOND,RUBY,JADE
```

Skill and Intelligence Games

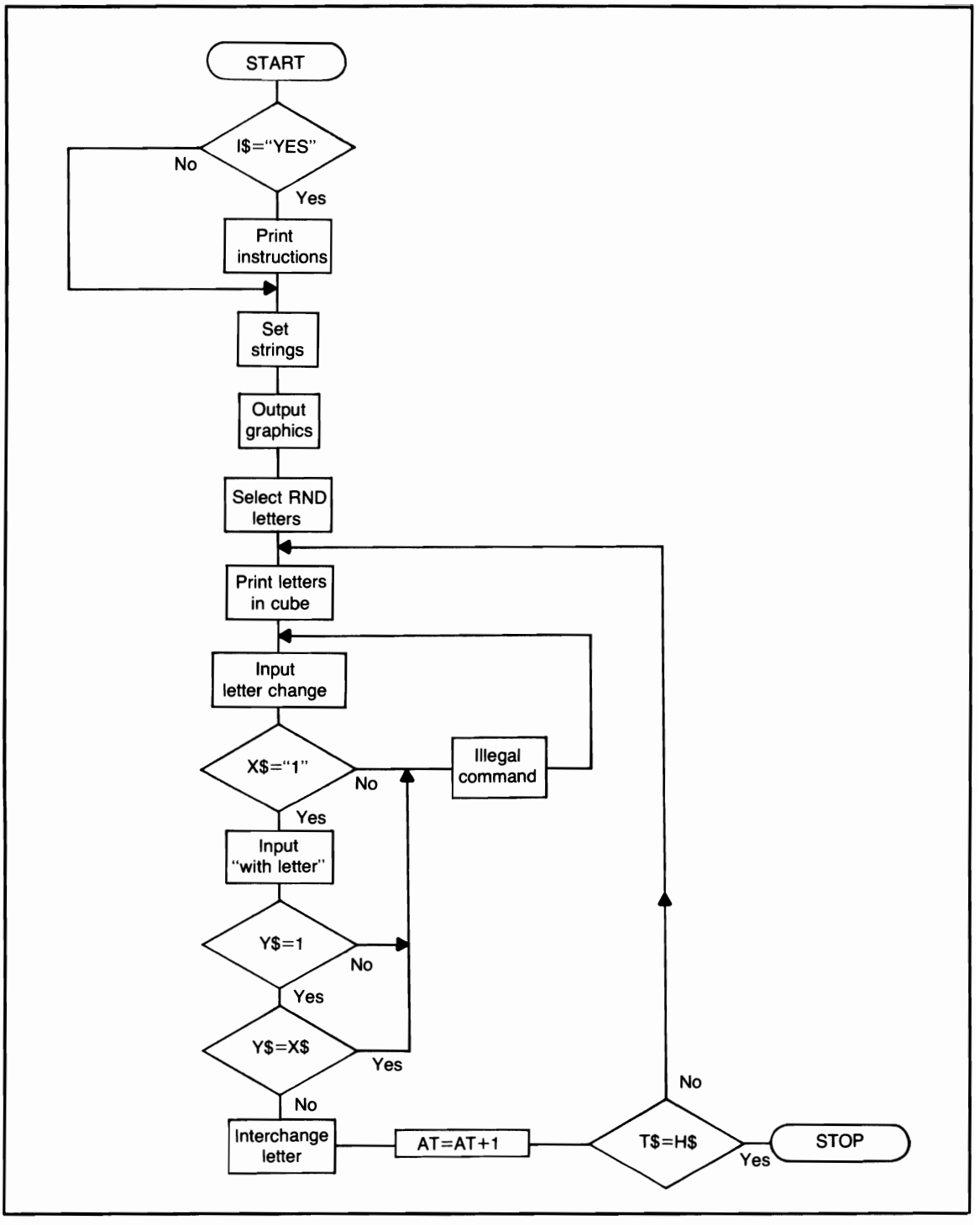
CUBE



Put your thinking cap on, 'cause you'll need it with this game! You'll be rearranging nine randomly placed letters in a cube. The object is to get them in alphabetical order in the fewest number of attempts. Caution! The computer has determined that this game is habit forming .....

Sample Run

```
              ((( CUBE )))

INSTRUCTIONS? YES

THIS IS THE GAME OF CUBE.
THE CUBE HAS 9 SECTIONS. WITHIN
EACH SECTION IS A LETTER. YOU
MUST PLACE EACH LETTER IN IT'S
PROPER AREA (THE COMPUTER WILL
SHOW YOU HOW THE CUBE WILL
LOOK WHEN FINISHED).
```



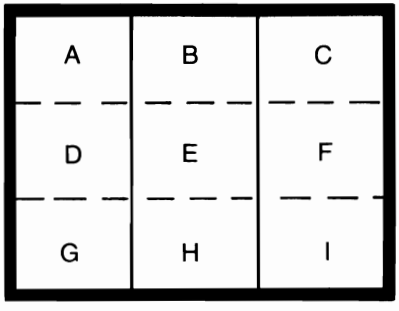
Flowchart for *Cube*

IF YOU WANT A LETTER IN A
CERTAIN PLACE, CHOOSE THE
LETTER THAT IS BEFORE THE
SPACE YOU WANT, EXAMPLE:

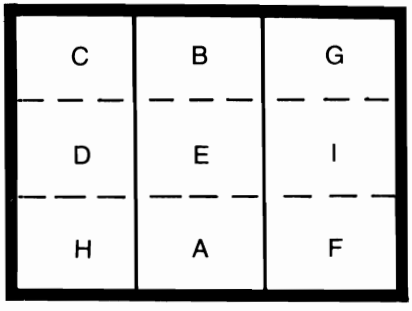
PRESS ENTER?

THE CUBE RANDOMLY PLACES THE
LETTERS, THEY TURN OUT LIKE:
D G C (TOP) B E F (MIDDLE)
AND I A H ON THE BOTTOM.
YOU WANT THE 'A' WHERE THE 'D'
IS, SO YOU'LL RESPOND THIS WAY:
CHANGE LETTER? G
WITH LETTER? A
THIS WILL PLACE THE 'A' WHERE
THE 'D' IS AND PUT THE 'G'
WHERE THE 'A' WAS, CONFUSED?
YOU'LL SOON CATCH ON ...

PRESS ENTER TO START?



This is how the cube should look when correctly finished



Change letter?

Press enter for 1st attempt?

Program Listing

```
10 REM PROGRAM TITLE: CUBE
20 CLS:CLEAR 300:L$=STRING$(18,45)
30 J=1:K=18:RANDOM
40 M=149:M1=277:M2=M1+192
50 REM
60 PRINT TAB(15);"((( CUBE )))"
```

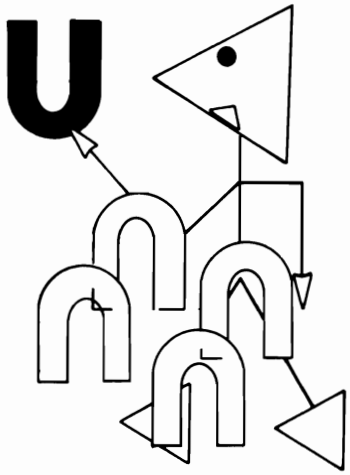
```
70 PRINT
80 INPUT"INSTRUCTIONS";I$
90 IF I$<>"YES" THEN 240
100 PRINT"THIS IS THE GAME OF CUBE."
105 PRINT"THE CUBE HAS 9 SECTIONS, WITHIN"
110 PRINT"EACH SECTION IS A LETTER. YOU"
115 PRINT"MUST PLACE EACH LETTER IN IT'S"
120 PRINT"PROPER AREA (THE COMPUTER WILL"
125 PRINT"SHOW YOU HOW THE CUBE WILL"
130 PRINT"LOOK WHEN FINISHED)."
135 PRINT"IF YOU WANT A LETTER IN A"
140 PRINT"CERTAIN PLACE, CHOOSE THE"
145 PRINT"LETTER THAT IS BEFORE THE"
150 PRINT"SPACE YOU WANT, EXAMPLE:"
155 PRINT
160 INPUT"PRESS ENTER";I$
165 CLS
170 PRINT"THE CUBE RANDOMLY PLACES THE"
175 PRINT"LETTERS, THEY TURN OUT LIKE:"
180 PRINT"D G C (TOP) B E F (MIDDLE)"
185 PRINT"AND I A H ON THE BOTTOM."
190 PRINT"YOU WANT THE 'A' WHERE THE 'D'"
195 PRINT"IS, SO YOU'LL RESPOND THIS WAY:"
200 PRINT"CHANGE LETTER? G"
205 PRINT"WITH LETTER? A"
210 PRINT"THIS WILL PLACE THE 'A' WHERE"
215 PRINT"THE 'D' IS AND PUT THE 'G'"
220 PRINT"WHERE THE 'A' WAS, CONFUSED ?"
225 PRINT"YOU'LL SOON CATCH ON..."
230 PRINT
235 INPUT"PRESS ENTER TO START";I$
240 CLS:H$="ABCDEFGHI"
250 FOR I=1TO9
260 READ A(I):NEXT
270 REM LETTERS
280 U=65:FOR I=1TO9:U(I)=I
290 A$(I)=CHR$(U):U=U+1:NEXT
300 REM THE CUBE
305 IF H=1 GOSUB410
310 FOR X=40TO80
320 SET(X,J):SET(X,K)
330 NEXT
340 REM FINE LINES
350 PRINT@M,L$;
```

```
360 PRINT@M1,L$;
370 FOR Y=J+1TOK-1
380 SET(40,Y):SET(55,Y)
390 SET(66,Y):SET(80,Y)
395 NEXT:IF UE=0 GOTO1200
400 IF R<>1 GOSUB500
405 GOSUB410:GOTO420
410 J=K+4:K=K+21
415 M=M1+320:M1=M+128:RETURN
420 GOTO600
430 REM CARRIAGE RETURNS
440 PRINT@960,
450 FOR P=1TO6
460 PRINT:NEXT
470 R=0:H=1:J=1:K=18
480 M=149:M1=277
485 IF RR=1 GOSUB500:GOTO600
490 GOTO300
500 REM PRINT LETTERS
505 IF JL=1 THEN 560
510 V=1
520 I=RND(9)
530 IF U(I)=0 THEN 520
540 W$(V)=A$(I)
545 IF W$(1)="A" THEN 520
550 IF V<>9 THEN 590
560 FOR I=1TO9
565 PRINT@A(I),W$(I);
570 U(I)=I:NEXT
580 RR=0:R=1:RETURN
590 U(I)=0:V=V+1:GOTO520
600 REM INPUT LETTER CHANGE
605 IF RR=1 GOTO430
610 GOTO900
615 PRINT@M2,;
620 INPUT"CHANGE LETTER";X$
625 PRINT@M2+64,;:GOTO700
630 INPUT"WITH LETTER";Y$
635 IF LEN(Y$)<>1 THEN 810
640 IF Y$=X$ THEN 810
645 PRINT@M2,"                "
650 REM LETTER CHANGE
660 FOR I=1TO9
670 IF Y$=W$(I) THEN W$(I)=X$:W$(MM)=Y$
```

```
680 NEXT
690 RR=1:JL=1:GOTO750
700 REM LETTER PLACEMENT
705 IF LEN(X$)<>1 THEN 810
710 FOR I=1TO9
720 IF X$=W$(I) THEN MM=I
730 NEXT
740 GOTO630
750 REM LETTER MOVEMENT
760 IF MM<=1 THEN 810
770 K$=W$(MM-1)
780 W$(MM-1)=Y$:W$(MM)=K$
790 T$=T$+Y$
800 GOTO300
810 REM ILLEGAL DIRECT
820 PRINT@M2,;
830 PRINT"* ILLEGAL COMMAND *";
840 FOR TI=1TO1200:NEXT
850 PRINT@M2,"                "
860 GOTO615
900 REM FIGURED OUT ?
905 T$=""
910 FOR I=1TO9
920 T$=T$+W$(I):NEXT
930 IF T$=H$ THEN 1000
940 AT=AT+1
950 PRINT@45,"ATTEMPTS =";AT;
960 GOTO615
1000 REM COMPLETED
1005 PRINT:PRINT:PRINT
1010 IF AT<=15 THEN 1080
1020 IF AT>=15 AND AT<=25 THEN 1110
1030 IF AT>=25 AND AT<=45 THEN 1150
1040 PRINT"DID YOU READ ALL THE"
1050 PRINT"INSTRUCTIONS ?? WITH ";AT
1060 PRINT"ATTEMPTS, YOU COULDN'T HAVE !!"
1070 GOTO1180
1080 PRINT"THAT IS GREAT!!! YOU SOLVED IT IN"
1090 PRINT"ONLY";AT;"ATTEMPTS !!"
1100 GOTO1180
1110 PRINT AT;"ATTEMPTS AREN'T BAD, BUT"
1120 PRINT"YOU PROBABLY COULD IMPROVE"
1130 PRINT"A LITTLE...RIGHT ??"
1140 GOTO1180
```

```
1150 PRINT"YOU'RE REALLY GETTING INTO THE"
1160 PRINT"HIGH SCORE AREA WITH";AT;"ATTEMPTS."
1170 PRINT"THAT IS JUST TOO MANY!!"
1175 PRINT
1180 PRINT"END OF PROGRAM RUN....."
1190 END
1200 REM ORIGINAL WORK
1210 FOR I=1TO9
1220 PRINT@A(I),A$(I);
1230 NEXT
1240 PRINT@M2-4,;
1250 PRINT"THIS IS HOW THE CUBE SHOULD"
1260 PRINT@M2+60,;
1270 PRINT"LOOK WHEN CORRECTELY FINISHED."
1280 PRINT@M2+124,;
1290 INPUT"PRESS ENTER TO START ";D$
1300 CLS:UE=1:GOTO300
5000 DATA 88,94,100,216,222
5010 DATA 228,344,350,356
```

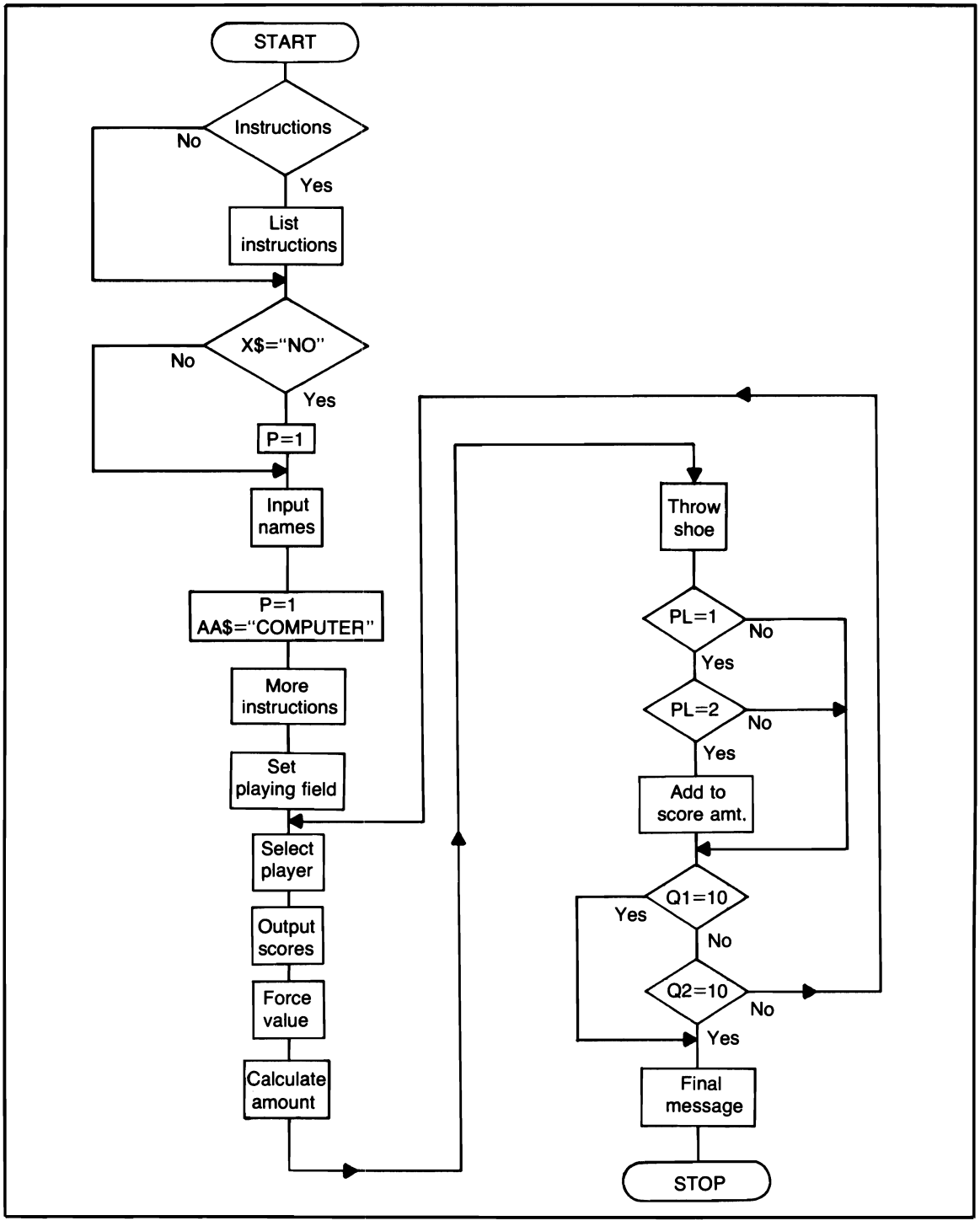
HORSESHOES



So Grandpa can pitch a horseshoe like no other? Let him try computer horseshoes, and then see if he is still bragging. Each pitch will be controlled by a force value. These force values are "S"—for a soft throw, "M"—for a medium throw, and "H" for a hard throw. After you input a force value, the computer will take over (naturally). Pitch a shoe!!

Sample Run

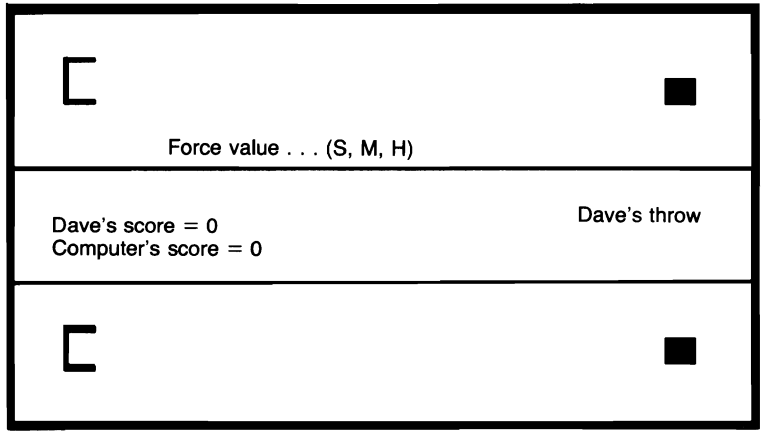
```
((( HORSESHOES )))

PRINT INSTRUCTIONS? YES
SURE YOU'VE TOSSED HORSESHOES
BUT, HAVE YOU TOSSED ANY
COMPUTER HORSESHOES LATELY ??
AT OR ABOUT THE TIME THE HORSE-
SHOES REACH THE POST THE
COMPUTER WILL USE THE RANDOM
FUNCTION TO FINISH THE TOSS.
TO SCORE, THE HORSESHOE MUST
TWIRL AROUND AND STAY CLOSE TO
THE POST.

PRESS ENTER?

ARE YOU CHALLENGING A FRIEND? NO
YOUR FIRST NAME? DAVE
```



Flowchart for *Horseshoes*

YOU'LL BE PLAYING AGAINST
YOUR COMPUTER.....

THROWING A HORSESHOE WILL BE
QUITE SIMPLE. YOU'LL INPUT
A 'FORCE VALUE' (USING INKEY$).
THIS 'FORCE VALUE' WILL
DETERMINE HOW FAR THE HORSESHOE
WILL TRAVEL.
'FORCE VALUES' ARE:
'S'...FOR A SOFT THROW.
'M'...FOR A MEDIUM THROW.
'H'...FOR A HARD THROW.
THE COMPUTER WILL USE THE
LETTER YOU ENTERED TO CALCULATE THE
DISTANCE THE HORSESHOE WILL
TRAVEL. SO LET THE HORSESHOES...
((FLY



Program Listing

```
10 REM PROGRAM TITLE: HORSESHOES
20 CLS:RANDOM
30 PRINT TAB(10);"((( HORSESHOES )))"
40 PRINT
50 INPUT"PRINT INSTRUCTIONS";X$
60 IF X$="NO" THEN G=1:GOTO200
```

```
70 PRINT
80 PRINT"SURE YOU'VE TOSSED HORSESHOES"
90 PRINT"BUT, HAVE YOU TOSSED ANY"
100 PRINT"COMPUTER HORSESHOES LATELY ??"
110 PRINT"ON OR ABOUT THE TIME THE HORSE-"
120 PRINT"SHOES REACH THE POST THE"
130 PRINT"COMPUTER WILL USE THE RANDOM"
140 PRINT"FUNCTION TO FINISH THE TOSS."
150 PRINT"TO SCORE, THE HORSESHOE MUST"
160 PRINT"TWIRL AROUND AND STAY CLOSE TO"
170 PRINT"THE POST."
180 PRINT
190 INPUT"PRESS ENTER";X$
200 CLS
210 PRINT"ARE YOU CHALLENGING A FRIEND";
220 INPUT X$
230 IF X$="NO" OR X$="N" THEN P=1
240 INPUT"YOUR FIRST NAME";A$
250 IF P=1 AA$="COMPUTER":GOTO280
260 INPUT"YOUR FRIENDS FIRST NAME";AA$
270 GOTO300
280 PRINT"YOU'LL BE PLAYING AGAINST"
290 PRINT"YOUR ";AA$;"....."
300 PRINT:IF G=1 G=0:GOTO480
305 FOR I=1TO1000:NEXT
310 PRINT"THROWING A HORSESHOE WILL BE"
320 PRINT"QUITE SIMPLE. YOU'LL INPUT"
330 PRINT"A 'FORCE VALUE' (USING INKEY$)."
340 PRINT"THIS 'FORCE VALUE' WILL"
350 PRINT"DETERMINE HOW FAR THE HORSESHOE"
360 PRINT"WILL TRAVEL."
370 PRINT"'FORCE VALUESS' ARE:"
380 PRINT"'S'...FOR A SOFT THROW."
390 PRINT"'M'...FOR A MEDIUM THROW."
400 PRINT"'H'...FOR A HARD THROW."
410 PRINT"THE COMPUTER WILL USE THE"
420 PRINT"LETTER YOU ENTERED TO CALCULATE THE"
430 PRINT"DISTANCE THE HORSESHOE WILL"
432 PRINT"TRAVEL. SO LET THE HORSESHOES..."
435 GOTO480
440 F$="FLY":F1$=CHR$(40)
450 FOR I=1TO10:FOR J=1TO5
460 PRINT F1$;:NEXT J,I
470 PRINT F$:RETURN
```

```
480 PRINT:A(1)=270:A(2)=715
490 INPUT"PRESS ENTER";X$:CLS
495 GOSUB440
500 REM PLAYING AREA
505 FOR I=1TO1000:NEXT
510 FOR X=0TO127
520 SET(X,0):SET(X,47)
530 SET(X,17):SET(X,30)
540 NEXT
550 FOR Y=1TO46
560 SET(0,Y):SET(127,Y)
570 NEXT
580 REM POSTS
585 J1=8:J2=9:J3=38:J4=39:J5=100:J6=101
590 FOR X=J5TOJ6
600 SET(X,J1):SET(X,J2)
610 SET(X,J3):SET(X,J4):NEXT
615 IF PL=1 OR PL=2 THEN 1070
620 GOSUB2000
630 REM WHO GOES FIRST ?
640 I=RND(2)
650 PL=I
660 PRINT@450,A$;"'S SCORE =";Q1;
670 PRINT@514,AA$;"'S SCORE =";Q2;
675 IF Q1=10 OR Q2=10 THEN 1700
680 IF PL=1 THEN 720
690 PRINT@554,AA$;"'S THROW";
700 PRINT@490,"                ";
705 IF P=1 THEN 1600
710 GOTO740
720 PRINT@490,A$;"'S THROW";
730 PRINT@554,"                ";
740 PRINT@A(PL),;
750 PRINT"FORCE VALUE?...(S, M, H)";
760 X$=INKEY$
770 IF X$="" THEN 760
775 GOSUB780:GOTO800
780 PRINT@A(PL),;
785 IF K=1 K=0:RETURN
790 PRINT"                          ";
795 RETURN
800 REM USERS THROW
810 IF X$="S" THEN F=20:GOTO830
815 IF X$="M" THEN F=64:GOTO830
```

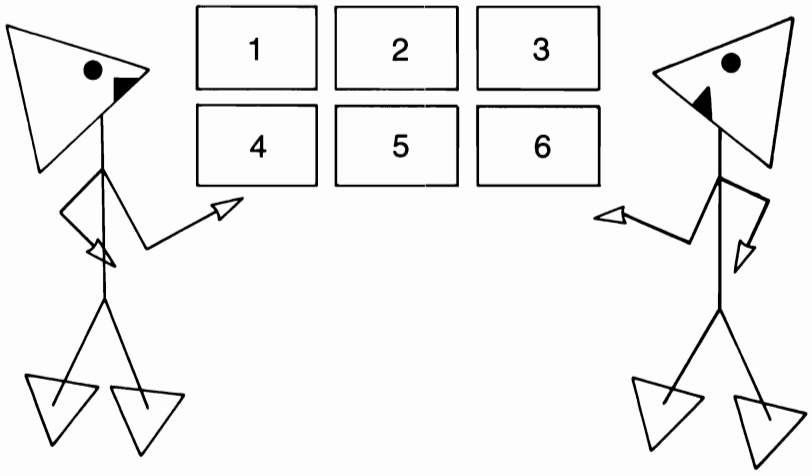
```
820 IF X$="H" THEN F=82:GOTO830
825 GOTO740
830 REM MORE TO FORCE VALUE
840 G=RND(12)
850 G=G+F
860 IF G<=0 G=1
870 IF G>=100 G=99
875 GOSUB2200
880 FOR M=YTOY+3:RESET(X,M):NEXT
890 FOR M=XTOX+3
900 RESET(M,Y):RESET(M,Y+3):NEXT
910 IF G>=110 THEN 960
920 X=X+(G+RND(10)):Z=X
930 FOR M=YTOY+3:SET(X,M):NEXT
940 FOR M=XTOX+3
950 SET(M,Y):SET(M,Y+3):NEXT
955 IF Z>=100 THEN 980
960 IF Z<=96 THEN 1100
970 GOTO1200
980 K=1:GOSUB780
985 IF P=1 AND PL=2 THEN 1010
990 PRINT"(( SORRY...YOU HAVE OVERSHOT ))";
1000 FOR I=1TO1200:NEXT
1010 GOSUB780
1020 REM RESET HORSE SHOE
1030 FOR M=YTOY+3:RESET(X,M):NEXT
1040 FOR M=XTOX+3
1050 RESET(M,Y):RESET(M,Y+3):NEXT
1055 IF J=2 J=0:GOTO1220
1060 GOTO580
1070 J=1:GOTO1470
1080 GOSUB2000:GOTO670
1100 REM UNDERSHOT
1110 K=1:GOSUB780
1115 IF P=1 AND PL=2 THEN 1130
1120 PRINT"(( SORRY...YOU HAVE UNDERSHOT ))";
1130 GOTO1000
1200 REM GOOD ENOUGH ?
1210 J=2:GOTO1020
1220 I=RND(4)
1225 A=J5-3:B=J6+3:C=J1:D=J2:C1=2:D1=14
1230 IF PL=2 THEN C=J3:D=J4:C1=33:D1=45
1235 IF I=3 OR I=4 THEN 1500
1240 FOR T=ATOB
```

```
1245 ON I GOTO 1250,1280
1250 SET(T,C-1):NEXT
1260 SET(T-1,C):SET(T-8,C)
1270 GOTO1300
1280 SET(T,D+1):NEXT
1290 SET(T-1,D):SET(T-8,D)
1300 REM NO SCORE
1305 REM IF GG=1 THEN FOR UU=1TO150:NEXT
1310 FOR T=ATOB
1320 ON I GOTO 1330,1370
1330 RESET(T,C-1):NEXT
1340 RESET(T-1,C):RESET(T-8,C)
1350 IF C<>C1 THEN C=C-1:GOTO1410
1360 GOTO1400
1370 RESET(T,D+1):NEXT
1380 RESET(T-1,D):RESET(T-8,D)
1390 IF D<>D1 THEN D=D+1:GOTO1410
1400 GG=0:GOTO1430
1410 GG=1:FOR UU=1TO200:NEXT
1420 A=A+1:B=B+1:GOTO1240
1430 K=1:GOSUB780
1435 IF P=1 AND PL=2 THEN 1460
1440 PRINT"(( SORRY...YOU DIDN'T SCORE ))";
1450 FOR UU=1TO1200:NEXT
1460 GOSUB780
1470 IF PL=1 J=1:GOSUB2000 ELSE GOSUB2070
1480 IF PL=1 PL=2:GOTO660
1490 IF PL=2 PL=1:GOTO660
1500 IF PL=1 THEN Q1=Q1+1
1505 IF PL=2 THEN Q2=Q2+1
1510 FOR T=ATOB
1515 SET(T,C-1):NEXT
1520 SET(T-1,C):SET(T-8,C)
1522 FOR T=ATOB
1525 RESET(T,C-1):NEXT
1530 RESET(T-1,C):RESET(T-8,C)
1535 FOR T=YTOY+3
1540 SET(X+6,T):NEXT
1545 FOR T=X+3TOX+5
1550 SET(T,Y):SET(T,Y+3):NEXT
1555 FOR T=1TO225:NEXT
1560 FOR T=YTOY+3
1565 RESET(X+6,T):NEXT
1570 FOR T=X+3TOX+5
```

```
1575 RESET(T,Y):RESET(T,Y+3):NEXT
1580 GOTO1470
1600 REM COMPUTER'S THROW
1610 LL=90
1620 L1=RND(10)
1630 G=ABS(LL-L1)+5
1640 GOSUB2200
1650 GOTO880
1700 REM A GAME
1710 PRINT@A(PL),;
1720 PRINT"*** THAT'S A GAME ***";
1730 FOR TT=1TO1500:NEXT
1740 CLS
1750 IF Q1=Q2 THEN 1850
1760 IF Q1>Q2 THEN 1810
1770 IF P=1 PRINT"YOUR ";AA$;:GOTO1790
1780 PRINT AA$;
1790 PRINT" HAS BEATEN YOU THIS GAME..."
1800 GOTO1880
1810 PRINT A$;" YOU HAVE BEATEN ";
1820 IF P=1 PRINT"YOUR ";AA$:GOTO1840
1830 PRINT AA$;"...A GOOD GAME !!!"
1840 GOTO1880
1850 PRINT"YOU BOTH HAVE";Q1;"POINTS."
1860 PRINT"A GOOD WAY TO FINISH. NEITHER"
1870 PRINT"OF YOU WINS !!!"
1880 PRINT
1890 PRINT"END OF HORSESHOES."
1900 END
2000 REM HORSESHOES
2010 Y=7:X=4
2020 FOR M=YTOY+3
2030 SET(X,M):NEXT
2040 FOR M=XTOX+3
2050 SET(M,Y):SET(M,Y+3):NEXT
2060 IF J=1 J=0:RETURN
2070 Q=37:W=4
2080 FOR M=QTOQ+3
2090 SET(W,M):NEXT
2100 FOR M=WTOW+3
2110 SET(M,Q):SET(M,Q+3):NEXT
2120 RETURN
2200 REM CENTRAL LOCATION
2210 REM FOR VARIABLES
```

```
2220 IF PL=2 THEN 2250
2225 Y=Y1:X=X1
2230 IF Y=0 Y=7
2235 IF X=0 X=4
2240 RETURN
2250 Y1=Y:X1=X
2260 Y=Q:X=W
2270 RETURN
```

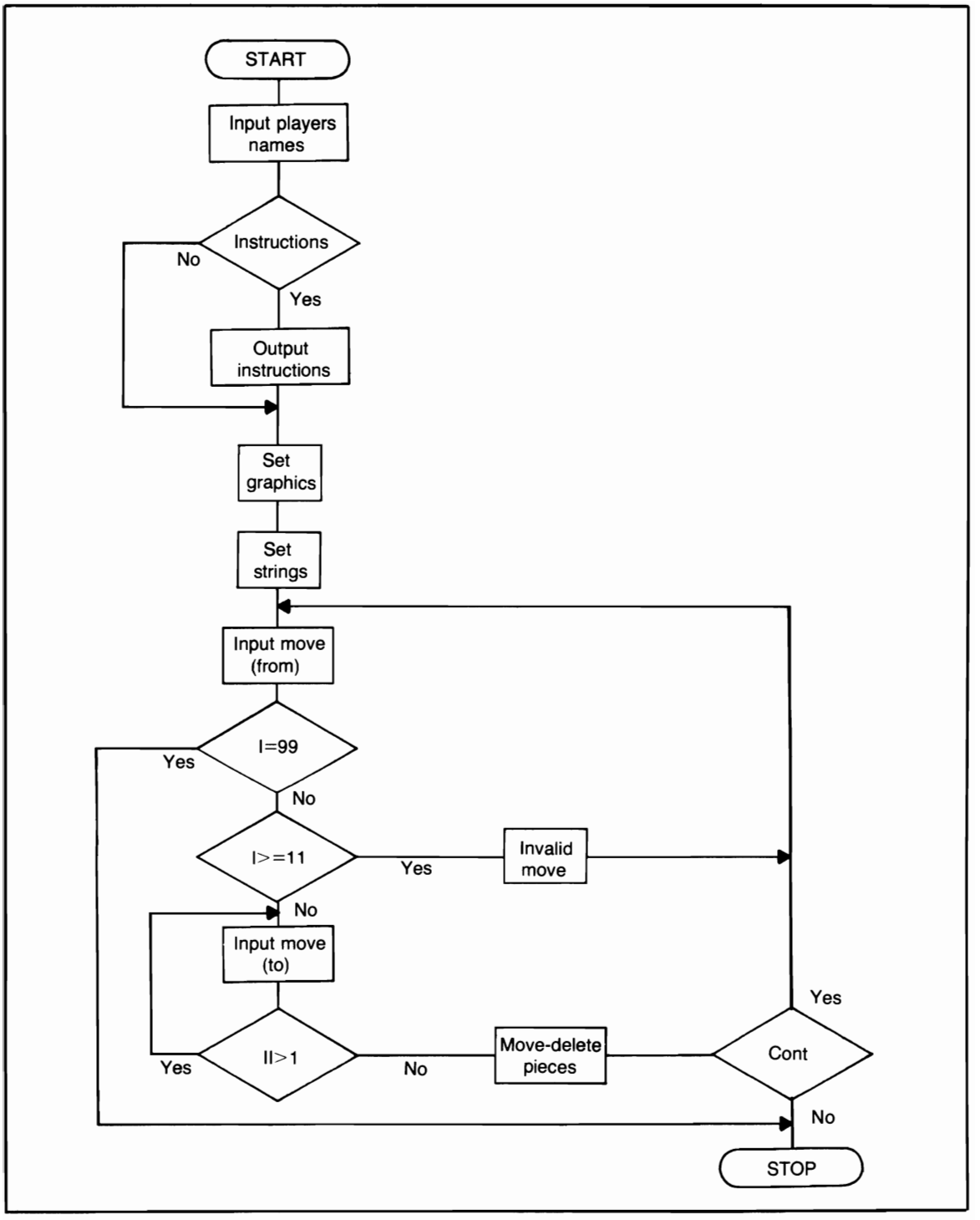
BLOKS



Bloks is a time-consuming game like checkers or chess, but the similarity stops there. This game requires full concentration on you and your opponent's part. You will have to use strategy to 'blok' your opponent, move your 22 bloks off the board, and at the same time, gain as many points as possible. Read all instructions carefully before playing.

Sample Run

```
PLAYER # 1 (INITIALS)?D.C.
PLAYER # 2 (INITIALS)?K.C.

                *** BLOKS ***

NEED THE INSTRUCTIONS?YES

** REQUIRES 2 PLAYERS **

THIS IS AN ACTION PACKED
GAME THAT REQUIRES
CAREFUL STRATEGY.
BOTH PLAYERS WILL START WITH
22 PLAYING PIECES. THE OBJECT
IS TO EARN THE HIGHEST
NUMBER OF POINTS POSSIBLE WHILE
DEPLETING YOUR SUPPLY OF PLAYING
PIECES, EACH PLAYER WILL HAVE
11 COLUMNS (0-10). EACH ONE
```



Flowchart for *Bloks*

OF THESE COLUMNS WILL CONTAIN

PRESS ENTER?

2 PLAYING PIECES. EACH OF YOU
WILL MOVE YOUR PIECES ONE
COLUMN AT A TIME, FROM A LOW
TO A HIGH NUMBER. (YOU CAN'T MOVE
BACKWARD.) TO SET UP "BLOKS" YOU
MUST HAVE 3 OF YOUR PIECES
IN A COLUMN.

PRESS ENTER?

FOR EXAMPLE:
IF YOU HAVE 2 PLAYING PIECES
ON '3' AND YOU WANT TO KEEP
YOUR OPPONENT FROM REACHING '3.'
YOU CAN PLACE ANOTHER PIECE ON
YOUR '3' AND YOUR OPPONENT
WILL BE BLOCKED FROM REACHING
'3' (AS LONG AS YOU HAVE 3
PIECES IN THAT OR ANY COLUMN).

PRESS ENTER?

EACH PLAYER WILL GAIN 3
POINTS WITH EACH COLUMN OF
3 PIECES. TO DEPLETE YOUR SUPPLY OF
PLAYING PIECES, MOVE FROM '10'
TO '11'. BUT REMEMBER, COLUMN
'9' MUST CONTAIN 3 PLAYING
PIECES TO RAISE YOUR SCORE
BY 10. (WHEN YOU HAVE REACHED
YOUR LAST 3 PLAYING PIECES
JUST GO FROM '10' TO '11'
THE COMPUTER WILL AUTOMATIC-
ALLY GIVE YOU 10 POINTS.)

PRESS ENTER?

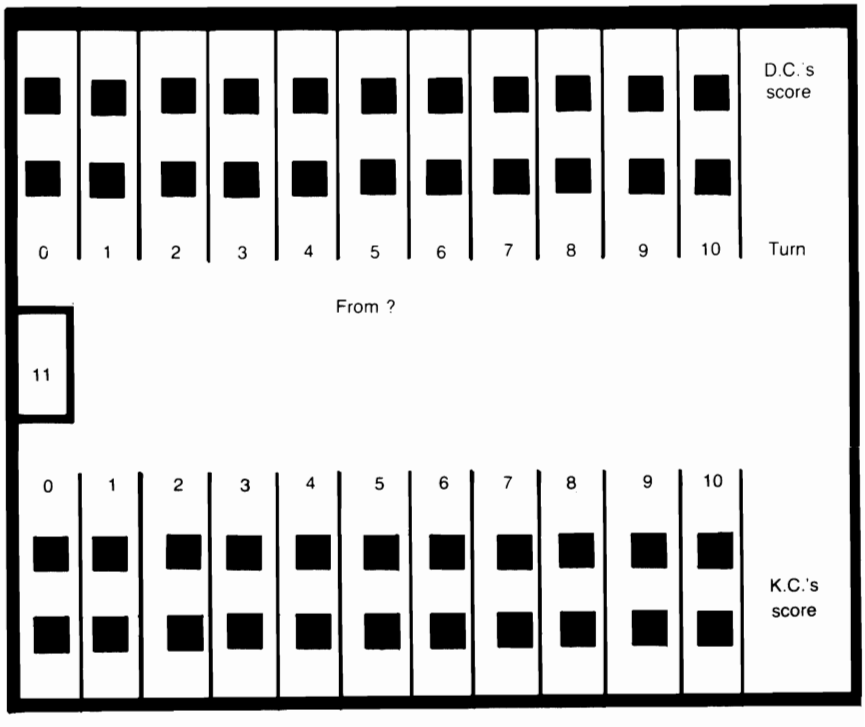
THIS PROGRAM UTILIZES THE
INKEY$ FUNCTION, HENCE, WHEN
INPUTTING MOVES BELOW 10 (0-9)
BE SURE TO INPUT LEADING ZERO'S,
AND DO NOT PRESS ENTER !!!
THE GAME WILL END WHEN EITHER

PLAYER HAS RUN OUT OF PLAYING
PIECES. THE PLAYER WITH THE
MOST POINTS WILL THEN
BE DECLARED THE WINNER.

PRESS ENTER?

(NOTE: IF EITHER YOU OR YOUR
OPPONENT CANNOT PLAY BECAUSE
OF 'BLOKS' THAT PLAYER MUST
INPUT '99' WHEN ASKED 'FROM.'
AT THAT POINT THE GAME WILL
END AND THE OTHER PLAYER WILL
BE DECLARED THE WINNER.

PRESS ENTER TO BEGIN?



Program Listing

```
10 REM PROGRAM TITLE: BLOKS
20 CLS:DIM A(22),X(22):V=470
25 DIM M(11),M1(11),M2(11),M3(11)
30 INPUT"PLAYER # 1 (INITALS)";A$
```

```
40 INPUT"PLAYER # 2 (INITALS)";B$
50 IF LEN(A$)+LEN(B$)>=9 THEN 70
60 CLS:X$="SCORE":GOTO100
70 PRINT"INPUT INITALS AGAIN...NOT"
80 PRINT"THE ENTIRE NAME !!"
90 GOTO30
100 CLS
110 PRINT TAB(15);"*** B L O K S ***"
120 PRINT
130 PRINT"NEED THE INSTRUCTIONS";
140 INPUT W$
150 IF W$="YES" THEN 2700
160 IF W$="NO" THEN 300
170 PRINT
180 PRINT"CUT THE FUNNY STUFF..."
190 PRINT"ANSWER 'YES' OR 'NO' !!!"
200 GOTO120
300 FOR X=0TO47:SET(0,X)
305 IF X>=21 AND X<=25 SET(10,X)
310 SET(127,X):NEXT:P=321:L=641:U=0:D=11
320 FOR X=1TO126:SET(X,0)
325 IF X>=1 AND X<=10 SET(X,20):SET(X,26)
330 SET(X,47):NEXT:Y=10
340 FOR X=1TO16:SET(Y,X):NEXT
350 FOR XX=46TO30 STEP-1:SET(Y,XX)
360 NEXT:IF U=0 PRINT@P+128,D;
365 PRINT@P,U;:PRINT@L,U;
370 IF Y<>110 THEN 1000 ELSE P=449
380 A=121:A1=697
390 PRINT@A,A$;"'S";
400 PRINT@A+64,X$;
410 PRINT@A1,B$;"'S";
420 PRINT@A1+64,X$;
425 J=2:K=8:F=2
430 FOR X=JTOK
440 SET(X,F):SET(X,F+1)
450 SET(X,F+2)
455 SET(X,F+37):SET(X,F+38)
460 SET(X,F+39):NEXT
462 A(I)=J:X(I)=K
465 IF K<>108 THEN 475
470 I=I+1:GOTO490
475 I=I+1
480 J=J+10:K=K+10:GOTO430
```

```
490 IF F<>6 THEN F=F+4:J=2:K=8:GOTO430
495 GOSUB1500:GOSUB1100
500 REM MOVEMENT
510 PRINT@V,"FROM?    ";
520 Q$=INKEY$:IF Q$="" THEN 520
530 I=VAL(Q$):I=I*10
535 Q$=INKEY$:IF Q$="" THEN 535
540 E=VAL(Q$):I=I+E:PRINT@V+5,I;
541 IF I=99 THEN 2500
542 IF I>=11 THEN 900
543 FOR R=1TO250:NEXT
545 PRINT@V,"TO?      ";
550 Q$=INKEY$:IF Q$="" THEN 550
560 II=VAL(Q$):IF II>1 THEN 545
565 II=II*10
570 Q$=INKEY$:IF Q$="" THEN 570
580 EE=VAL(Q$):II=II+EE
582 IF II>=12 THEN 900
583 IF I>II THEN 900
584 IF ABS(I-II)>=2 THEN 900
585 PRINT@V+5,II;:IF PX=0 THEN 800
590 IF PX=1 GOTO1300 ELSE 1400
595 FOR Z=A(I)TOX(I)
600 RESET(Z,G):RESET(Z,G+1)
610 RESET(Z,G+2):NEXT
620 IF II=11 THEN 2000
660 FOR Z=A(II)TOX(II):SET(Z,F)
670 SET(Z,F+1):SET(Z,F+2)
680 NEXT
684 PX=0
685 PRINT@A+256,"    ";:GOSUB1240
690 FOR R=1TO250:NEXT:PRINT@V+5,"  ";
695 F=F-4:GOTO500
700 REM INVALID MOVE
710 PRINT@V+64,"INVALID MOVE";
720 FOR R=1TO875:NEXT
730 PRINT@V+64,"          ";
740 I=0
750 RETURN
800 REM OPPONENTS MOVE
810 GOTO1400
820 FOR Z=A(I)TOX(I):RESET(Z,T+37)
830 RESET(Z,T+38):RESET(Z,T+39)
840 NEXT
```

```
845 IF II=11 THEN 2000
850 FOR Z=A(II)TOX(II):SET(Z,F+37)
860 SET(Z,F+38):SET(Z,F+39):NEXT
870 PRINT@A1+256,"   ";
875 PX=1
880 GOSUB1240:PRINT@V+5,"     ";
890 GOTO500
900 REM TO INVALID MOVE
910 GOSUB700
920 IF JJ=1 GOSUB1240:JJ=0
930 GOTO500
1000 Y=Y+10:U=U+1:P=P+5
1010 L=L+5:GOTO340
1100 PRINT@V,"DRAWING TWO NUMBERS.";
1105 PRINT@V+64,;:FOR R=1TO775:NEXT
1110 PRINT"HIGH NUMBER GOES FIRST...";
1120 FOR R=1TO1200:NEXT
1125 PRINT@A+192,"DRAW";:PRINT@A1+192,"DRAW";
1130 FOR W=1TO2
1140 FOR U=1TO3
1150 D1=RND(20):D2=RND(20)
1155 PRINT@A+256,D1;:PRINT@A1+256,D2;
1160 IF D1=D2 THEN 1130
1170 NEXT U,W
1172 FOR R=1TO1200:NEXT
1175 PRINT@A+192,"   ";:PRINT@A1+192,"   ";
1178 PRINT@A+256,"  ";:PRINT@A1+256,"  ";
1180 IF D1>D2 PRINT@V+64,A$;:PX=1:GOTO1200
1190 PRINT@V+64,B$;
1200 PRINT" WILL PLAY FIRST.   ";
1210 FOR R=1TO1200:NEXT
1220 PRINT@V,"                  ";
1230 PRINT@V+64,"                  ";
1240 IF PX=1 PRINT@A+256,"TURN";:GOTO1260
1250 PRINT@A1+256,"TURN";
1260 RETURN
1300 REM DELETE PIECES
1304 IF M(I)=0 THEN 900
1305 IF M(I)=3 F=10
1310 IF M(I)=2 F=6
1315 IF M(I)=1 F=2
1320 M(I)=M(I)-1:G=F
1325 IF M(I)<=0 M(I)=0
1330 REM SET AREA
```

```
1340 IF M(II)=2 F=10
1342 IF M(II)=3 THEN G=0:M(I)=M(I)+1:GOTO900
1343 IF M(II)=1 F=6
1344 IF M(II)=0 F=2
1345 M(II)=M(II)+1
1346 GOTO1600
1350 IF M(II)=3 GOSUB1900
1355 GOTO595
1400 REM DELETE PIECES
1405 IF M1(I)=3 F=-2
1410 IF M1(I)=2 F=2
1412 IF M1(I)=1 F=6
1415 M1(I)=M1(I)-1
1420 IF M1(I)<=0 M1(I)=0
1425 T=F
1430 IF M1(II)=3 THEN M1(I)=M1(I)+1:GOTO900
1440 M1(II)=M1(II)+1
1445 IF M(II)=3 THEN 1780
1450 IF M1(II)=3 GOSUB1940
1460 IF M1(II)-1=2 F=-2
1465 IF M1(II)-1=1 F=2
1468 IF M1(II)-1=0 F=6
1470 GOTO820
1500 REM PLAYERS PIECES
1510 H=2
1515 FOR I=0TO10
1520 M(I)=H:M1(I)=H
1530 NEXT
1540 RETURN
1600 REM BLOKS ?
1610 IF M1(II)=3 THEN 1750
1620 GOTO1350
1625 IF M1(II)=3 THEN 900
1630 IF M(II)=3 THEN 1780
1660 GOTO1405
1750 PX=0:M(I)=M(I)+1:M(II)=M(II)-1
1755 F=G:G=0:GOSUB2200
1760 PRINT@A+256,"   ";
1770 JJ=1:GOTO900
1780 M1(I)=M1(I)+1:M1(II)=M1(II)-1
1785 PX=1:F=T:T=0:GOSUB2200
1790 PRINT@A1+256,"   ";
1800 JJ=1:GOTO900
1900 REM POINTS ADVANCE
```

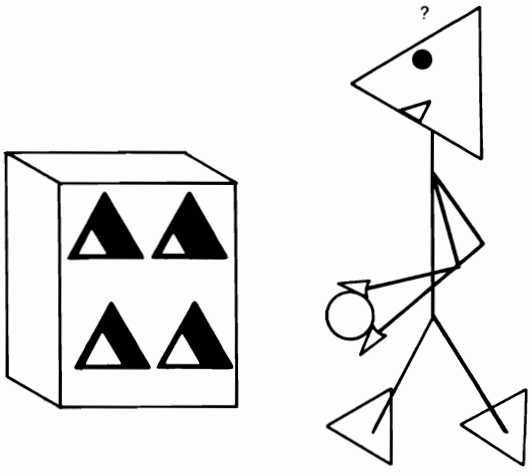
```
1910 P1=P1+3
1920 PRINT@A+128,P1;
1930 RETURN
1940 P2=P2+3
1950 PRINT@A1+128,P2;
1960 RETURN
2000 REM PIECE OUT
2005 N=22
2010 IF PX=1 THEN AY=AY+1:GOTO2020
2015 AX=AX+1
2020 FOR Z=A(II)TOX(II)
2030 SET(Z,N):SET(Z,N+1)
2040 SET(Z,N+2):NEXT
2050 FOR R=1TO550:NEXT
2060 FOR Z=A(II)TOX(II)
2070 RESET(Z,N):RESET(Z,N+1)
2080 RESET(Z,N+2):NEXT
2090 IF PX=1 THEN 2155
2095 IF AX>=20 THEN 2110
2100 IF M1(II-2)<>3 THEN 2120
2110 P2=P2+10:PRINT@A1+128,P2;
2115 M1(II)=0:GOTO2180
2120 PRINT@V+64,"NO POINTS";
2130 FOR R=1TO1000:NEXT
2140 PRINT@V+64,"        ";
2145 M(II)=0:M1(II)=0:GOTO2180
2150 IF PX=1 THEN 684 ELSE 870
2155 IF AY>=20 THEN 2170
2160 IF M(II-2)<>3 THEN 2120
2165 M(II)=0
2170 P1=P1+10:PRINT@A+128,P1;
2180 PRINT@P,D;
2185 IF AY=22 THEN 2300 ELSE IF AX=22 THEN 2350
2190 IF AX=22 AND AY=22 THEN 2400
2195 GOSUB1240:GOTO2150
2200 REM BLOKS PRINT
2210 PRINT@V+64,"* B L O K S *";
2220 FOR R=1TO850:NEXT
2230 PRINT@V+64,"          ";
2240 RETURN
2300 REM WIN + TOTAL SCORE
2305 IF P1=P2 THEN 2400
2310 IF P2>P1 THEN 2350
2315 PRINT@V-10,;
```

```
2320 PRINT A$;" HAS JUST WON, FINAL SCORE";
2325 PRINT@V+54,;
2330 PRINT A$;" HAS";P1;" ";B$;" HAS";P2;
2340 GOTO2340
2350 PRINT@V-10,;
2355 IF P1>P2 THEN 2320
2360 PRINT B$;" HAS JUST WON, FINAL SCORE";
2370 PRINT@V+54,;
2380 PRINT B$;" HAS";P2;" ";A$;" HAS";P1;
2390 GOTO2340
2400 REM TIE
2410 PRINT@V-10,;
2420 PRINT"TIE GAME...FINAL SCORE";
2430 PRINT
2440 GOTO2325
2500 REM FORFEIT OF GAME
2510 PRINT@V-10,;
2520 IF PX=1 THEN 2570
2530 PRINT B$;" HAS JUST GIVEN UP...";
2540 PRINT@V+54,;
2550 PRINT A$;" WINS BY DEFAULT !!!";
2560 GOTO2340
2570 PRINT A$;" HAS JUST GIVEN UP...";
2580 PRINT@V+54,;
2590 PRINT B$;" WINS BY DEFAULT !!!";
2600 GOTO2340
2700 REM INSTRUCTIONS
2710 PRINT"** REQUIRES 2 PLAYERS **"
2720 PRINT"THIS IS AN ACTION PACKED"
2730 PRINT"GAME THAT REQUIRES"
2740 PRINT"CAREFUL STRATRGY."
2750 PRINT"BOTH PLAYERS WILL START WITH"
2760 PRINT"22 PLAYING PIECES. THE OBJECT"
2770 PRINT"IS TO EARN THE HIGHEST"
2780 PRINT"NUMBER OF POINTS POSSIBLE WHILE"
2790 PRINT"DEPLETING YOUR SUPPLY OF PLAYING"
2800 PRINT"PIECES. EACH PLAYER WILL HAVE"
2810 PRINT"11 COLUMNS (0-10), EACH ONE"
2820 PRINT"OF THESE COLUMNS WILL CONTAIN"
2830 INPUT"PRESS ENTER";XX
2840 CLS
2850 PRINT"2 PLAYING PIECES. EACH OF YOU"
2860 PRINT"WILL MOVE YOUR PIECES ONE"
2870 PRINT"COLUMN AT A TIME, FROM A LOW"
```

```
2880 PRINT"TO A HIGH NUMBER (YOU CAN'T MOVE"
2890 PRINT"BACKWARD). TO SET UP ";CHR$(34);
2900 PRINT"BLOKS";CHR$(34);" YOU"
2910 PRINT"MUST HAVE 3 OF YOUR PIECES"
2915 PRINT"IN A COLUMN."
2916 INPUT"PRESS ENTER";XX:CLS
2920 PRINT"FOR EXAMPLE:"
2930 PRINT"IF YOU HAVE 2 PLAYING PIECES"
2940 PRINT"ON '3' AND YOU WANT TO KEEP"
2950 PRINT"YOUR OPPONENT FROM REACHING '3'"
2960 PRINT"YOU CAN PLACE ANOTHER PIECE ON"
2970 PRINT"YOUR '3' AND YOUR OPPONENT"
2980 PRINT"WILL BE BLOCKED FROM REACHING"
2990 PRINT"'3' (AS LONG AS YOU HAVE 3"
3000 PRINT"PIECES IN THAT OR ANY COLUMN)."
3010 INPUT"PRESS ENTER";XX
3020 CLS
3030 PRINT"EACH PLAYER WILL GAIN 3"
3040 PRINT"POINTS WITH EACH COLUMN OF"
3050 PRINT"3 PIECES. TO DEPLETE YOUR SUPPLY OF"
3060 PRINT"PLAYING PIECES, MOVE FROM '10'"
3070 PRINT"TO '11'. BUT REMEMBER, COLUMN"
3080 PRINT"'9' MUST CONTAIN 3 PLAYING"
3090 PRINT"PIECES TO RAISE YOUR SCORE"
3100 PRINT"BY 10. (WHEN YOU HAVE REACHED"
3110 PRINT"YOUR LAST 3 PLAYING PIECES"
3120 PRINT"JUST GO FROM '10' TO '11'"
3130 PRINT"THE COMPUTER WILL AUTOMATIC-"
3140 PRINT"ALLY GIVE YOU 10 POINTS.)"
3150 INPUT"PRESS ENTER";XX
3160 CLS
3170 PRINT"THIS PROGRAM UTILIZES THE"
3180 PRINT"<INKEY$> FUNCTION, HENCE, WHEN"
3190 PRINT"INPUTTING MOVES BELOW 10 (0-9)"
3200 PRINT"BE SURE TO INPUT LEADING ZERO'S,"
3210 PRINT"AND DO NOT PRESS ENTER !!!"
3220 PRINT"THE GAME WILL END WHEN EITHER"
3230 PRINT"PLAYER HAS RUN OUT OF PLAYING"
3250 PRINT"PIECES. THE PLAYER WITH THE"
3260 PRINT"MOST POINTS WILL THEN"
3270 PRINT"BE DECLARED THE WINNER."
3275 INPUT"PRESS ENTER";XX:CLS
3280 PRINT"NOTE: IF EITHER YOU OR YOUR"
3290 PRINT"OPPONENT CANNOT PLAY BECAUSE"
```

```
3300 PRINT"OF 'BLOKS' THAT PLAYER MUST"
3310 PRINT"INPUT '99' WHEN ASKED 'FROM'."
3320 PRINT"AT THAT POINT THE GAME WILL"
3330 PRINT"END AND THE OTHER PLAYER WILL"
3335 PRINT"BE DECLARED THE WINNER."
3340 INPUT"PRESS ENTER TO BEGIN";XX
3350 CLS
3360 GOTO300
```

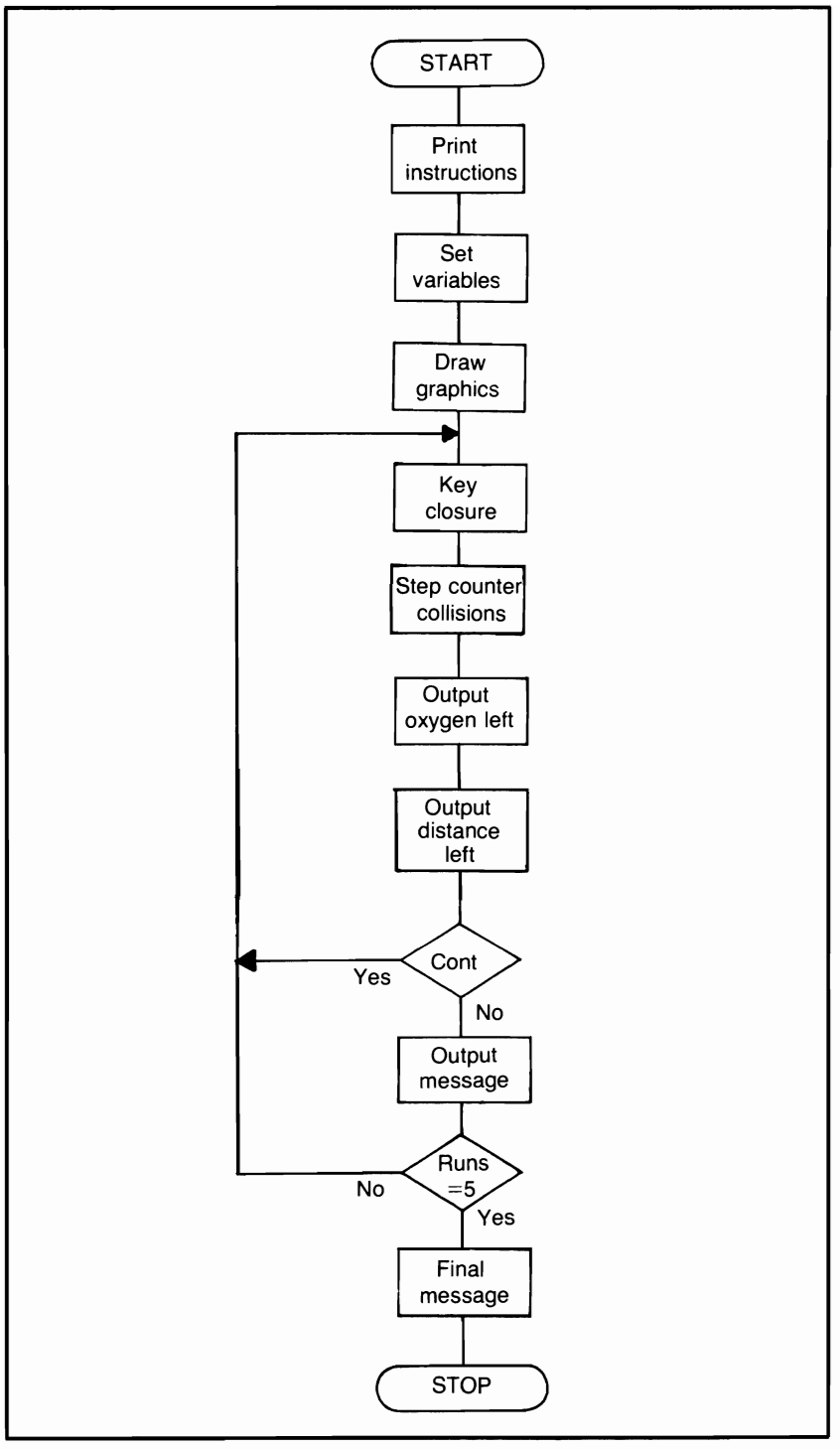
MISSION IMPROBABLE



You are destined to be killed by microscopic germs if you or your opponent do not complete this mission. You must keep an eye on where you are going, how much oxygen you have left, how far you still have to travel, and how high the alarm rating has climbed. Two players must compete against each other in this game.

Sample Run

```
1ST PLAYER'S FIRST NAME? SPOCK
2ND PLAYER'S FIRST NAME? KIRK

LIST INSTRUCTIONS? YES

        *** MISSION IMPROBABLE ***

THIS IS A GAME IN WHICH YOU WILL
CHALLENGE A FRIEND OR RELATIVE TO
COMPLETE A MISSION. THE FINAL SCORE
WILL BE COMPUTED AS FOLLOWS:
ONE POINT TO THE PLAYER WITH FEWER
COLLISIONS, ONE POINT TO THE PLAYER
WITH MORE OXYGEN LEFT, AND ONE
POINT TO THE PLAYER WITH LESS
DISTANCE LEFT TO GO.

THE WINNER OF THE MISSION WILL BE
```



Flowchart for ***Mission Improbable***

```
PRINTED AFTER EACH OF YOU HAVE
COMPLETED FIVE TOTAL RUNS.

PRESS ENTER?

YOU SHOULD GET THE 'HANG' OF THINGS
AFTER YOU HAVE COMPLETED 1 RUN.
BUT, JUST TO GET YOU STARTED, HERE'S
WHERE YOU'LL BE AND WHAT YOUR MISSION
WILL BE:
YOU ARE IN AN AIR-TIGHT CAPSULE. BEYOND
YOUR DORM (WHERE YOU'LL START & FINISH)
WILL BE THREE AIR-LOCK DOORS. YOU
MUST MANEUVER OUT OF YOUR DORM, GO OUT
ONE OF THE 3 AIR-LOCK DOORS AND
RETURN THROUGH A DIFFERENT DOOR.
THE OBJECT OF ALL THIS IS TO RID YOUR-
SELF OF DEADLY MICROSCOPIC GERMS THAT
HAVE INFILTRATED YOUR DORM.

PRESS ENTER?

ALL OF THIS SOUNDS VERY SIMPLE, RIGHT?
BUT, THERE ARE A FEW THINGS YOU'LL HAVE
TO REMEMBER: TAKE THE SHORTEST ROUTE
SO YOU'LL HAVE PLENTY OF OXYGEN AND
DON'T COLLIDE WITH ANY WALLS
(ALL COLLISIONS WILL COUNT AGAINST YOU.)
AFTER YOU GET STARTED YOU WILL SEE
AN 'ALARM RATING' NEAR THE TOP
CENTER OF THE SCREEN. AS YOU
ARE RETURNING TO YOUR DORM, THIS
RATING WILL BECOME HIGHER & HIGHER.
AS A MATTER OF FACT, WHEN YOU MAKE

PRESS ENTER?

THE FINAL TURNS ON YOUR WAY BACK TO
YOUR DORM THIS RATING WILL BECOME
VERY HIGH. DON'T TOUCH THE WALLS
NOW OR INSTANT DEATH WILL RESULT
FROM THE MICROSCOPIC GERMS.
WHEN YOU ENTER THE FINAL DOOR
TO YOUR DORM, YOU WILL SEE AN 'X'
'X MARKS THE SPOT'. HIT
```

OR COLLIDE WITH THIS 'X' AND YOU
WILL HAVE COMPLETED 1 (ONE) RUN.
OH YES, I FORGOT TO MENTION, AFTER
YOU PASS THROUGH ONE OF THE AIR-LOCK
DOORS (THERE ARE THREE) ONE OF
THE 2 REMAINING DOORS WILL BE

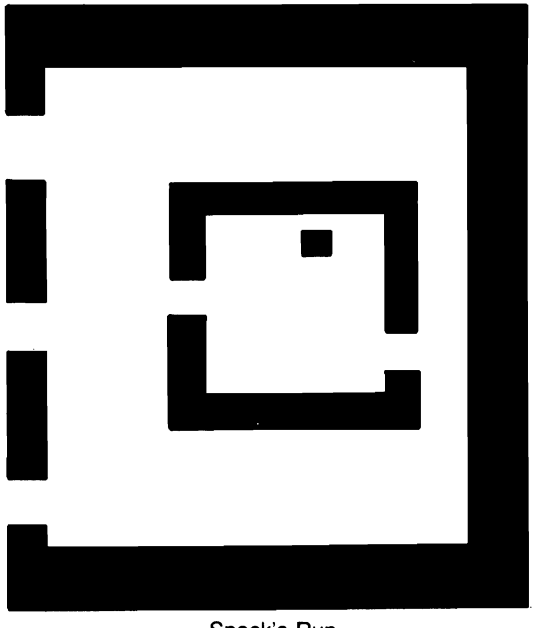
PRESS ENTER?

CLOSED AND SEALED. SO YOU'LL HAVE
TO USE THE ONE REMAINING DOOR TO
GET BACK IN.

YOU WILL USE THE FOUR
ARROW KEYS TO MANIPULATE YOURSELF
AROUND THE COURSE AREA. USE THE
LEFT, RIGHT, UP, AND DOWN ARROW
KEYS.....ONLY!

PRESS ENTER NOW AND SPOCK
WILL TAKE THE FIRST RUN?

Collisions = 0 Oxygen = 0 Alarm rating: 0 Distance left = 725



Spock's Run

Program Listing

```
10 REM PROGRAM TITLE: MISSION IMPROBABLE
20 CLS
30 RANDOM
40 GOTO3000
80 FOR I=1TO3:S(I)=I:NEXT
85 GF=1500:DF=0:FF=0:BB=0
90 RX=975:XN=10000:DL=750:AR=0:D=0
100 Y=6:YY=41:A=50:Z=85:FG=1500
110 FOR X=32TO100
120 SET(X,Y):SET(X,Y+1):SET(X,Y+2)
130 NEXT
140 FOR X=100TO32 STEP-1
150 SET(X,YY):SET(X,YY-1)
160 SET(X,YY-2)
170 NEXT
180 FOR X=YTOYY
190 SET(30,X):SET(31,X)
200 SET(32,X):NEXT
210 FOR X=YYTOY STEP-1
220 SET(101,X):SET(102,X)
230 SET(103,X):NEXT
235 GOSUB240:GOTO290
240 IF DF=1 GOSUB2670
245 FOR X=ATOZ
250 SET(X,Y+10):SET(X,Y+11)
255 IF DF=1 PRINT@102,AR;
260 SET(X,Y+12):IF DF=1 THEN AR=AR+.2
270 SET(X,YY-10):SET(X,YY-11)
280 SET(X,YY-12):NEXT:PL=Z
282 GOSUB1800
285 RETURN
290 FOR X=Y+12TOYY-12
300 SET(A,X):SET(51,X):SET(52,X)
310 SET(Z,X):SET(84,X):SET(83,X)
320 NEXT
330 Q=RND(24)
340 IF Q<=18 THEN 330
350 FOR X=ATOA+2
360 RESET(X,Q):RESET(X,Q+1)
370 RESET(X,Q+2):NEXT
380 W=RND(24)
390 IF W=Q THEN 380
```

```
400 IF W<=18 THEN 380
410 FOR X=Z-2TOZ
420 RESET(X,W):RESET(X,W+1)
430 RESET(X,W+2):NEXT
440 FOR X=30TO32
450 RESET(X,Y+4):RESET(X,Y+5)
460 RESET(X,Y+6)
470 RESET(X,YY-4):RESET(X,YY-5)
480 RESET(X,YY-6)
490 RESET(X,Y+17):RESET(X,Y+18)
500 RESET(X,Y+19)
510 NEXT
520 FOR I=1TO4:J(I)=Y+4
530 K(I)=Y+17:L(I)=YY-7
540 Y=Y+1:YY=YY+1
550 NEXT:Y=6:YY=41:X=A+15
555 F=Y+15:M=(A-20):GOSUB780
560 SET(X,F):SET(X+1,F)
565 IF BB=0 PRINT@RX+10,T$;"'S RUN";
570 QQ=PEEK(15340)
580 IF X<=38 THEN POKE15905,88
585 IF X<=30 AND FF=0 GOSUB1600
590 IF FF=1 AND PEEK(15905)<>88 THEN 2000
600 IF QQ=64 THEN 650
610 IF QQ=32 THEN 670
620 IF QQ=16 THEN 680
630 IF QQ=8  THEN 690
640 GOTO570
650 X=X+1
660 IF DF=1 AND X>=80 THEN 695 ELSE 900
670 X=X-1:GOTO920
680 F=F+1:GOTO940
690 F=F-1:GOTO960
695 GOSUB1560:GOTO900
700 IF X<=9 THEN 750
710 IF X>=99 THEN 750
720 IF F<=9 THEN 750
730 IF F>=38 THEN 750
735 IF X<=29 AND DF=0 THEN 770
740 DL=DL-5:GOTO560
750 REM REACHED LIMITS
760 GOTO1100
770 TR=X:GOSUB1520:GOSUB1560:GOTO560
780 PRINT@2,"COLLISIONS =";
```

```
790 PRINT@20,"OXYGEN =";
800 PRINT@38,"DISTANCE LEFT =";
805 PRINT@88,"ALARM RATING:";
810 RETURN
820 XN=((XN-INT(X/10)-(X*1.1)))
822 IF DL<=0 THEN DL=0
825 PRINT@14,D;
826 IF XN<=0 THEN XN=0:PRINT@29,"      ";:PX=1
830 PRINT@28,XN;
840 PRINT@102,AR;
850 PRINT@54,DL;
855 IF PX=1 THEN 2000
860 GOTO700
900 IF POINT(X+2,F) THEN 1000
910 GOTO820
920 IF POINT(X-1,F) THEN 1000
922 IF POINT(X,F-1) THEN 1000
925 IF POINT(X,F+1) THEN 1000
930 GOTO910
940 IF POINT(X+1,F+1) THEN 1000
950 GOTO910
960 IF POINT(X,F-1) THEN 1000
970 GOTO910
1000 REM COLLISIONS
1010 D=D+1:AD=AD+1
1015 IF D=1 THEN Z=PL ELSE Z=Z
1020 IF DF=1 GOSUB1560
1025 PRINT@14,D;
1030 AD=0:GOTO910
1100 REM * LIMITS PRINT *
1110 PRINT@RX,"YOU HAVE REACHED THE";
1120 PRINT" LIMIT - BACK UP...";
1130 FOR W=1TO1200:NEXT
1140 PRINT@RX,"                ";
1150 PRINT"                  ";
1200 REM DOOR CLOSURE
1210 T=RND(3)
1215 IF S(T)=0 THEN 1210
1220 FOR I=1TO4
1230 ON T GOTO 1240,1260,1280
1240 SET(M,J(I)):SET(M+1,J(I))
1250 SET(M+2,J(I)):GOTO1300
1260 SET(M,K(I)):SET(M+1,K(I))
1270 SET(M+2,K(I)):GOTO1300
```

```
1280 SET(M,L(I))¦SET(M+1,L(I))
1290 SET(M+2,L(I))
1300 NEXT
1305 IF S1=2 THEN 1340
1310 S1=S1+1¦S2=S(T)¦S(T)=0
1320 GOTO1400
1340 PRINT@RX+8,"ALL DOORS ARE CLOSED.....";
1350 GOSUB1810¦GOTO1480
1400 REM DOOR CLOSED ON PATH
1405 ON S2 GOTO 1410,1430,1450
1410 IF F>=9 AND F<=13 THEN 1470
1420 GOTO560
1430 IF F>=22 AND F<=25 THEN 1470
1440 GOTO560
1450 IF F>=34 AND F<=37 THEN 1470
1460 GOTO560
1470 REM DOOR CLOSED
1475 IF X>=33 THEN 1420
1480 PRINT@RX+3,"YOUR PATH HAS BEEN CUT-OFF ";
1490 GOSUB1810
1500 PRINT@RX+3,"  THIS RUN IS OVER.....     ";
1505 XN=0¦DL=750
1510 GOSUB1810¦GOTO2400
1520 DF=1
1530 Y=Y-6¦A=A-13
1540 YY=YY+6¦Z=Z+13
1550 GOSUB240
1555 Y=6¦YY=41¦X=TR¦RETURN
1560 FOR U=Y+5TOYY-5¦SET(Z,U)¦NEXT
1565 GOSUB2670
1566 FOR HJ=1TO150¦NEXT
1570 Z=Z-1¦AR=AR+.2
1580 IF AR>=14.4 AND POINT(X+1,F) THEN 1900
1585 GOSUB1800
1590 BB=1¦RETURN
1600 REM CLOSE ONE DOOR
1610 FF=1
1620 IF F>=9 AND F<=13 THEN AN=1¦GOTO1655
1630 IF F>=22 AND F<=25 THEN AN=2¦GOTO1655
1640 IF F>=34 AND F<=37 THEN AN=3¦GOTO1655
1650 RETURN
1655 AA=RND(3)¦IF AA=AN THEN 1655
1660 FOR I=1TO4
1670 ON AA GOTO 1680,1700,1720
```

```
1680 SET(M,J(I))¦SET(M+1,J(I))
1690 SET(M+2,J(I))¦GOTO1740
1700 SET(M,K(I))¦SET(M+1,K(I))
1710 SET(M+2,K(I))¦GOTO1740
1720 SET(M,L(I))¦SET(M+1,L(I))
1730 SET(M+2,L(I))
1740 NEXT
1750 RETURN
1800 PRINT@RX+3,"                          ";
1805 PRINT@RX+3,;¦RETURN
1810 FOR FG=1TOGF¦NEXT
1820 RETURN
1900 REM FINAL ALARM
1910 RA=1
1920 GOSUB1800
1930 PRINT"    ***** ALARM *****";
1932 FOR KL=1TO100¦NEXT
1934 GOSUB1800
1940 GF=100¦GOSUB1810
1950 RA=RA+1¦IF RA<=6 THEN 1920
1960 FOR GF=1TO2500¦NEXT
1965 CLS¦PRINT
1970 PRINT T$;" YOU HAVE TRIPPED THE"
1975 PRINT"MAIN ALARM SYSTEM....."
1980 PRINT"THE MICROSCOPIC GERMS ARE OUT OF"
1985 PRINT"CONTROL.....YOU AND ";B$
1990 PRINT"ARE BOTH DEAD........."
1995 GOTO2300
2000 REM COMPLETED
2005 IF GF<=0 THEN GF=1500
2010 FF=0¦DF=0¦GOSUB1800
2015 IF PX=1 PX=0¦GOTO2200
2020 PRINT"YOU HAVE RETURNED, AND COMPLETED";
2030 GOSUB1810¦GOSUB1800
2035 IF D<>0 THEN 2100
2040 PRINT"RUN NUMBER";
2045 IF RE=0 PRINT R1 ;A$; ELSE PRINT R2 ;B$;
2050 GOSUB1810¦GOSUB1800
2060 GOTO2400
2100 PRINT"A RUN, BUT YOU HAVE HAD";
2110 GOSUB1810¦GOSUB1800
2120 PRINT D;"COLLISIONS.";
2130 GOSUB1810¦GOSUB1800
2140 PRINT"THE GERMS ARE STILL ACTIVE !!";
```

```
2150 GOSUB1810:GOSUB1800
2160 GOTO2400
2200 GOSUB1800
2210 IF RE=0 THEN 2280
2220 PRINT B$;" YOU HAVE USED UP YOUR";
2230 GOSUB1810:GOSUB1800
2240 PRINT"AMOUNT OF OXYGEN, SORRY.";
2250 GOSUB1810:GOSUB1800
2260 PRINT"THIS RUN SCRUBBED !!!";
2270 GOSUB1810:GOSUB1800:GOTO2400
2280 PRINT A$;" YOU HAVE USED UP YOUR";
2290 GOTO2230
2300 REM PLAY ANOTHER
2305 FOR KJ=1TO2000:NEXT:PRINT
2310 PRINT
2315 PRINT A$;" ARE YOU AND ";B$;" READY"
2320 PRINT"TO PLAY ANOTHER 5 RUNS THROUGH"
2325 INPUT"THE CAPSULE";I$
2330 IF I$="YES" OR I$="Y" THEN 3890
2335 PRINT
2340 PRINT"TOTAL RUN COMPLETED....."
2345 END
2400 IF RE=0 THEN 2450
2410 B(R2)=D:B1(R2)=XN:B2(R2)=DL
2420 R2=R2+1
2430 RE=0:T$=A$
2440 IF R2<=5 THEN 2600
2450 A(R1)=D:A1(R1)=XN:A2(R1)=DL
2460 RE=1:T$=B$
2470 R1=R1+1
2480 IF R1<=5 THEN 2600
2485 IF R2<=5 THEN 2600 ELSE 2700
2490 GOTO2700
2600 GOSUB1800
2610 PRINT T$;" WILL TAKE A RUN THROUGH";
2620 GOSUB1810:GOSUB1800
2630 PRINT"THE CAPSULE...GOOD LUCK !!";
2640 GOSUB1810:GOSUB1800
2650 CLS
2660 GOTO80
2670 PRINT@RX+9,"* NOTE ALARM RATING *";
2680 RETURN
2700 REM RUNS COMPLETED
2705 M1=0:M2=0
```

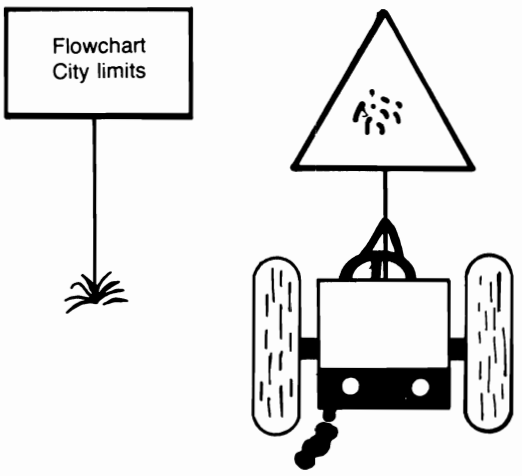
```
2710 FOR I=1TO5
2720 J=A(I)+J
2730 J1=B(I)+J1
2740 NEXT
2760 FOR I=1TO5
2770 J2=A1(I)+J2
2780 J3=B1(I)+J3
2790 NEXT
2810 FOR I=1TO5
2820 J4=A2(I)+J4
2830 J5=B2(I)+J5
2840 NEXT
2850 IF J=J1 THEN 2860
2855 IF J<J1 THEN M1=M1+1 ELSE M2=M2+1
2860 IF J2=J3 THEN 2870
2865 IF J2>J3 THEN M1=M1+1 ELSE M2=M2+1
2870 IF J4=J5 THEN 2895
2880 IF J4<J5 THEN M1=M1+1 ELSE M2=M2+1
2895 PRINT@RX+5,"** COMPILING ALL DATA **";
2910 FOR GH=1TO2000:NEXT:CLS:PRINT
2915 PRINT"***** END OF 5 MISSIONS *****"
2920 PRINT
2922 IF J=0 AND J1=0 THEN 2940
2925 IF J>J1 PRINT A$;:KJ=1  ELSE PRINTB$;
2930 PRINT" HAD THE MOST COLLISIONS, TOTAL =";
2935 IF KJ=1 PRINT J ELSE PRINT J1
2940 PRINT"TOTAL AMOUNT OF OXYGEN LEFT:"
2945 PRINT A$;" HAS";J2;"UNITS."
2950 PRINT B$;" HAS";J3;"UNITS."
2955 IF J2>J3 THEN PRINT A$; ELSE PRINTB$;
2960 PRINT" HAS THE GREATER NUMBER OF UNITS."
2965 PRINT"TOTAL DISTANCE:"
2970 PRINT A$;"'S DISTANCE =";J4
2975 PRINT B$;"'S DISTANCE =";J5
2980 IF J4<J5 PRINT A$; ELSE PRINT B$;
2981 PRINT" HAS THE LEAST DISTANCE."
2982 IF M1=M2 THEN 2985
2983 IF M1>M2 THEN T$=A$ ELSE T$=B$
2984 GOTO2987
2985 PRINT
2986 PRINT"BOTH OF YOU HAVE DESTROYED THE
     GERMS.":GOTO2995
2987 PRINT
2988 PRINT T$;" HAS SUCCESSFULLY DESTROYED ALL"
```

```
2989 PRINT"THE MICROSCOPIC GERMS IN THE DORM"
2990 PRINT"AREA.....CONGRATULATIONS !!!"
2995 GOTO2300
3000 REM PLAYER'S NAMES & INSTRUCTIONS
3010 PRINT CHR$(23)
3020 PRINT
3030 INPUT"1ST PLAYER'S FIRST NAME";A$
3040 INPUT"2ND PLAYER'S FIRST NAME";B$
3050 PRINT
3060 INPUT"LIST INSTRUCTIONS";I$
3070 IF I$="NO" OR I$="N" THEN NA=1
3080 CLS
3090 IF NA=1 THEN 3850
3100 PRINT TAB(15);"*** MISSION IMPROBABLE ***"
3110 PRINT
3120 PRINT"THIS IS A GAME IN WHICH YOU WILL"
3130 PRINT"CHALLENGE A FRIEND OR RELATIVE TO"
3140 PRINT"COMPLETE A MISSION. THE FINAL SCORE"
3150 PRINT"WILL BE COMPUTED AS FOLLOWS:"
3160 PRINT"ONE POINT TO THE PLAYER WITH FEWER"
3170 PRINT"COLLISIONS, ONE POINT TO THE PLAYER"
3180 PRINT"WITH MORE OXYGEN LEFT, AND ONE"
3185 PRINT"POINT TO THE PLAYER WITH LESS"
3190 PRINT"DISTANCE LEFT TO GO."
3200 PRINT"THE WINNER OF THE MISSION WILL BE"
3210 PRINT"PRINTED AFTER EACH OF YOU HAVE"
3220 PRINT"COMPLETED 5 TOTAL RUNS."
3230 PRINT
3240 INPUT"PRESS ENTER";XX
3250 CLS
3260 PRINT
3270 PRINT"YOU SHOULD GET THE 'HANG' OF THINGS"
3280 PRINT"AFTER YOU HAVE COMPLETED 1 RUN."
3290 PRINT"BUT, JUST TO GET YOU STARTED, HERE'S"
3300 PRINT"WHERE YOU'LL BE AND WHAT YOUR
     MISSION"
3310 PRINT"WILL BE:"
3320 PRINT"YOU ARE IN AN AIR-TIGHT CAPSULE.
     BEYOND"
3330 PRINT"YOUR DORM (WHERE YOU'LL START
     & FINISH)"
3340 PRINT"WILL BE 3 AIR-LOCK DOORS. YOU"
3350 PRINT"MUST MANEUVER OUT OF YOUR DORM,
     GO OUT"
```

```
3360 PRINT"ONE OF THE 3 AIR-LOCK DOORS AND"
3370 PRINT"RETURN THROUGH A DIFFERENT DOOR."
3380 PRINT"THE OBJECT OF ALL THIS IS TO RID YOUR-"
3390 PRINT"SELF OF DEADLY MICROSCOPIC
     GERMS THAT"
3400 PRINT"HAVE INFILTRATED YOUR DORM."
3410 PRINT
3420 INPUT"PRESS ENTER";XX
3430 PRINT
3440 PRINT"ALL OF THIS SOUNDS VERY SIMPLE, RIGHT?"
3450 PRINT"BUT, THERE ARE A FEW THINGS YOU'LL
     HAVE"
3460 PRINT"TO REMEMBER: TAKE THE SHORTEST
     ROUTE;"
3470 PRINT"SO YOU'LL HAVE PLENTY OF OXYGEN,"
3480 PRINT"AND DON'T COLLIDE WITH ANY WALLS;"
3490 PRINT"ALL COLLISIONS WILL COUNT AGAINST
     YOU."
3500 PRINT"AFTER YOU GET STARTED, YOU WILL SEE"
3510 PRINT"AN 'ALARM RATING' NEAR THE TOP"
3520 PRINT"CENTER OF YOUR SCREEN. AS YOU"
3530 PRINT"ARE RETURNING TO YOUR DORM, THIS"
3540 PRINT"RATING WILL BECOME HIGHER & HIGHER."
3550 PRINT"AS A MATTER OF FACT, WHEN YOU MAKE"
3560 PRINT
3570 INPUT"PRESS ENTER";XX
3580 PRINT
3590 PRINT"THE FINAL TURNS ON YOUR WAY BACK TO"
3600 PRINT"YOUR DORM THIS RATING WILL BECOME"
3610 PRINT"VERY HIGH. DON'T TOUCH THE WALLS NOW"
3620 PRINT"OR INSTANT DEATH WILL RESULT"
3630 PRINT"FROM THE MICROSCOPIC GERMS."
3640 PRINT"WHEN YOU ENTER THE FINAL DOOR"
3650 PRINT"TO YOUR DORM, YOU WILL SEE AN 'X'"
3660 PRINT"AS IN 'X MARKS THE SPOT'. HIT"
3670 PRINT"OR COLLIDE WITH THIS 'X' AND YOU"
3680 PRINT"WILL HAVE COMPLETED 1 (ONE) RUN."
3690 PRINT"OH YES, I FORGOT TO MENTION, AFTER"
3700 PRINT"YOU PASS THROUGH ONE OF THE
     AIR-LOCK"
3710 PRINT"DOORS (THERE ARE THREE) ONE OF"
3720 PRINT"THE 2 REMAINING DOORS WILL BE"
3730 PRINT
3740 INPUT"PRESS ENTER";XX
```

```
3750 PRINT
3760 PRINT"CLOSED AND SEALED. SO YOU'LL HAVE"
3770 PRINT"TO USE THE ONE REMAINING DOOR TO"
3780 PRINT"GET BACK IN."
3790 PRINT
3800 PRINT"YOU WILL USE THE FOUR"
3810 PRINT"ARROW KEYS TO MANIPULATE YOURSELF"
3820 PRINT"AROUND THE COURSE AREA. USE THE"
3830 PRINT"LEFT, RIGHT, UP, AND DOWN ARROW"
3840 PRINT"KEYS.....ONLY!!"
3850 PRINT
3860 PRINT"PRESS ENTER NOW AND ";A$
3880 INPUT"WILL TAKE THE FIRST RUN";XX
3890 CLS
3900 R1=1:R2=1
3910 T$=A$:RE=0
3920 GOTO80
```

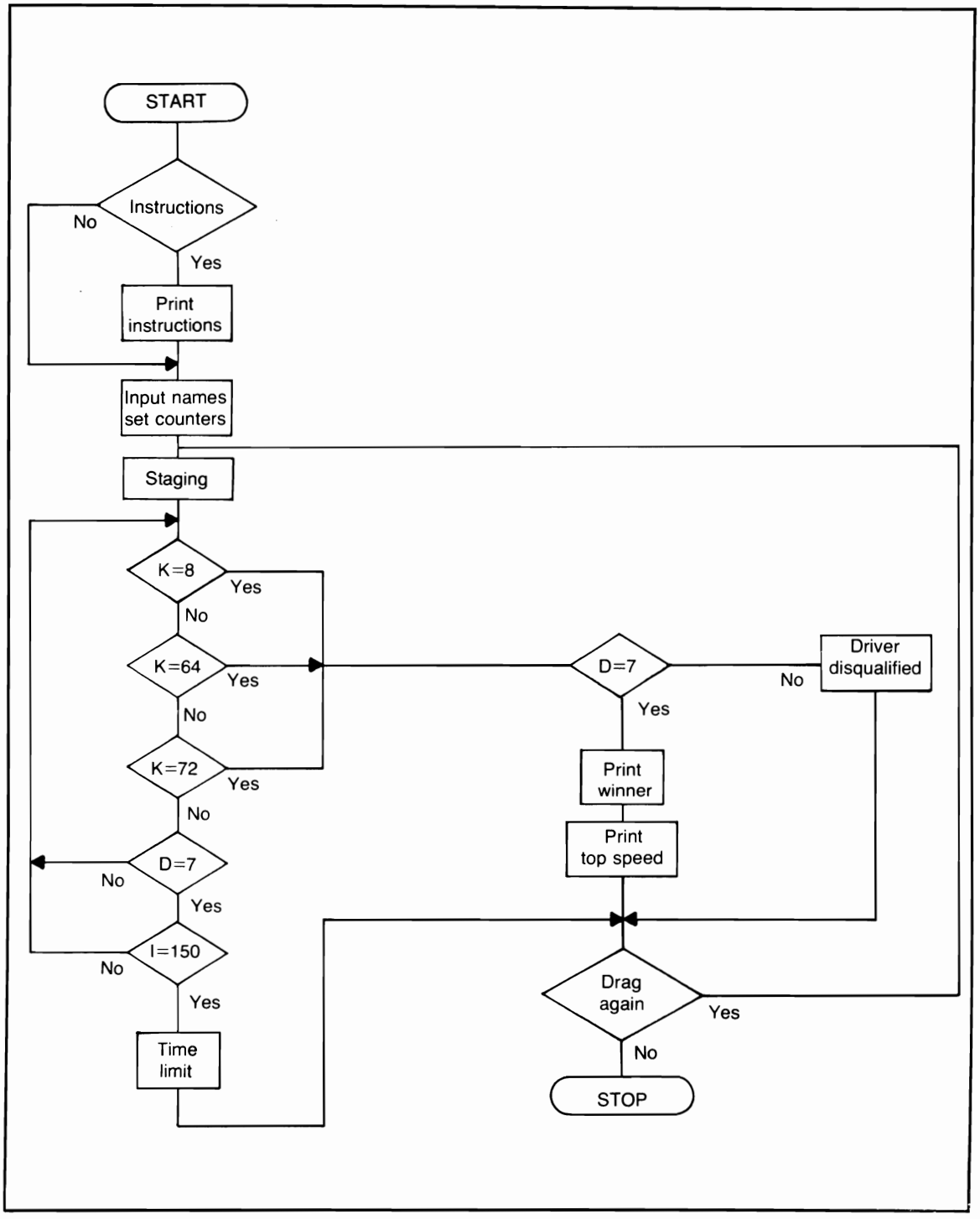
DRIVER



"Wanna drag???" The computer will supply everything needed for your friend and you to take off at speeds over 200 m.p.h. Naturally, the person crossing the finish line first will be the winner. One more thing: don't jump the gun while the computer is "staging" the race. You'll lose automatically if you do!!

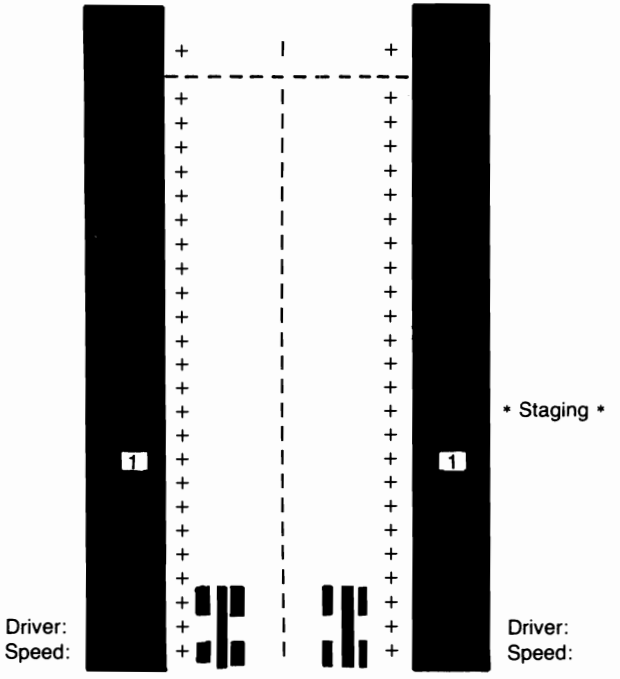
Sample Run

```
          >>> DRIVER <<<

INSTRUCTIONS (Y/N)? Y

YOU AND A FRIEND WILL STRAP
ON SEAT BELTS AND RACE
ONE ANOTHER TO A SMOKEY FINISH.
IMMEDIATELY AFTER YOU ENTER TWO
DRIVERS' NAMES, THE COMPUTER WILL
CLEAR THE SCREEN, DRAW THE
DRAG STRIP AND BEGIN STAGING.
THE DRIVER IN THE LEFT LANE
WILL USE THE UP ARROW KEY
TO MOVE HIS/HER DRAGSTER.

ENTER?

THE DRIVER IN THE RIGHT LANE
WILL USE THE RIGHT ARROW KEY
TO MOVE HIS/HER DRAGSTER.
```



Flowchart for *Driver*

```
ONLY WHEN THE STAGE LIGHTS HAVE
REACHED 7 SHOULD YOU PRESS
THE KEY FOR YOUR LANE.
ATTEMPTING TO START BEFORE
YOUR OPPONENT WILL GET YOU
DISQUALIFIED, AND YOUR OPPONENT
WILL AUTOMATICALLY WIN.
SO SIT BACK...FASTEN YOUR BELTS
AND PRESS ENTER?

2 DRIVER'S NAMES? DAVE
?? KAREN
```



Program Listing

```
10 REM PROGRAM TITLE: DRIVER
20 CLEAR 200
30 CLS:RANDOM
40 PRINT TAB(15);">>> DRIVER <<<"
45 PRINT
50 PRINT"INSTRUCTIONS (Y/N)";
```

```
55 INPUT T$
60 IF T$="N" THEN 400
65 PRINT"YOU AND A FRIEND WILL STRAP"
70 PRINT"ON SEAT BELTS AND RACE"
75 PRINT"ONE ANOTHER TO A SMOKEY FINISH."
80 PRINT"IMMEDIATELY AFTER YOU ENTER TWO"
85 PRINT"DRIVERS NAMES, THE COMPUTER WILL"
90 PRINT"CLEAR THE SCREEN, DRAW THE"
95 PRINT"DRAG STRIP AND BEGIN STAGING."
100 PRINT"THE DRIVER FOR THE LEFT LANE"
105 PRINT"WILL USE THE UP ARROW KEY"
110 PRINT"TO MOVE HIS/HER DRAGSTER."
115 INPUT"ENTER";T$
120 CLS
125 PRINT"THE DRIVER IN THE RIGHT LANE"
130 PRINT"WILL USE THE RIGHT ARROW KEY"
135 PRINT"TO MOVE HIS/HER DRAGSTER."
140 PRINT"ONLY WHEN THE STAGE LIGHTS HAVE"
145 PRINT"REACHED <7> SHOULD YOU PRESS"
150 PRINT"THE KEY FOR YOUR LANE."
155 PRINT"ATTEMPTING TO START BEFORE"
160 PRINT"YOUR OPPONENT WILL GET YOU"
165 PRINT"DISQUALIFIED, AND YOUR OPPONENT"
170 PRINT"WILL AUTOMATICALLY WIN."
175 PRINT"SO SIT BACK...FASTEN YOUR BELTS"
180 INPUT"AND PRESS ENTER";T$
185 PRINT
190 PRINT
400 INPUT"2 DRIVER'S NAMES";Q$,W$
410 CLS
420 IF DD=1 THEN 510
470 Y$=STRING$(3,191):U$=""
480 D$=CHR$(32):L$=STRING$(17,45)
490 X$=CHR$(162)+CHR$(170)+CHR$(162)
500 A$=STRING$(5,191)+CHR$(32)+CHR$(43)
505 B$=CHR$(43)+CHR$(32)+STRING$(5,191)
510 A=15:A1=35:R=A1+5:A4=919:A5=927:G=1:D=1
520 PRINT@A,A$;
525 PRINT@A+13,"I";
530 PRINT@A1,B$;
535 IF A=79 PRINT@A+5,L$;
540 IF A>=896 THEN A6=A5+3:GOTO565
545 IF G=9 F=A+1:F1=A1+3:F3=F:F4=F1
550 G=G+1:A=A+64:A1=A1+64
```

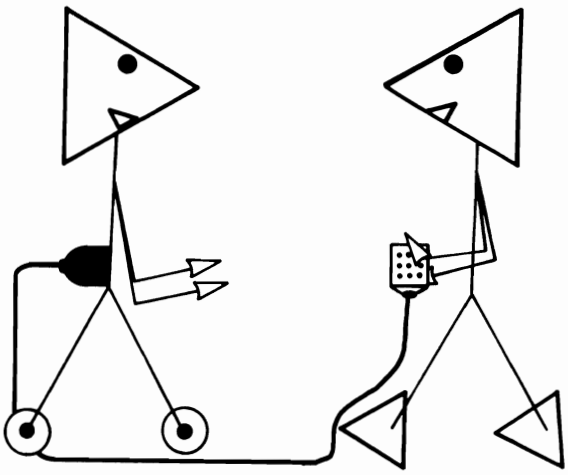
```
560 GOTO520
565 GOSUB1200
570 PRINT@A4,X$;
580 PRINT@A5,X$;
585 P3=P3+50:P4=P4+50:P7=P3:P8=P4
588 P7=P3+RND(20):P8=P4+RND(20)
590 K=PEEK(15340)
595 IF NN=0 AND P3<>0 OR P4<>0 THEN 1430
600 REM DRIVER ?
605 IF K=8 THEN 680
610 IF K=64 THEN 640
620 IF K=72 THEN 720
625 IF D=7 THEN 1520
630 IF H=0 GOTO1100 ELSE 1150
640 REM RIGHT LANE
650 PRINT@A5,"  ";
655 PRINT@S2+7,P4+P1/2;
660 A5=A5-P1:Y=Y-P1
670 IF A5=KX THEN 800 ELSE 570
680 REM LEFT LANE
690 PRINT@A4,"  ";
700 PRINT@S1+7,P3+P2/2;
705 A4=A4-P2:X=X-P2
710 IF A4=KK THEN 800 ELSE 570
720 REM BOTH LANES
725 REM P3=P3+25:P4=P4+25
730 PRINT@A4,"  ";
740 PRINT@A5,"  ";
745 PRINT@S1+7,P7;
750 PRINT@S2+7,P8;
755 A4=A4-P2:X=X-P2
760 A5=A5-P1:Y=Y-P1
770 IF A4=KK THEN 800
780 IF A5=KX THEN 800
785 IF K=8 THEN 680
790 IF K=64 THEN 640
795 GOTO570
800 REM FINISHED
810 PRINT@0,"FINISHED";
820 FOR I=1TO1200:NEXT
830 CLS:TR=TR+1
840 REM PRINT WINNER
850 REM CHECK FOR DEFAULT DRIVER
860 IF U$<>"" THEN 1660
```

```
870 IF X=Y THEN 1050
880 IF X>Y THEN PRINT W$;:GOTO900
890 PRINT Q$;
900 PRINT" WINS THIS RACE."
910 PRINT"TOP SPEED:";
920 IF X>Y PRINT P8:GOTO940
930 PRINT P7
940 PRINT"TOTAL RACES:";TR
950 PRINT
960 INPUT"RACE AGAIN (Y/N)";T$
970 IF T$="N" THEN 1800
980 REM ANOTHER DRAG
1000 P3=0:P4=0:P7=0:P8=0:DD=1
1010 PRINT"SAME DRIVERS (Y/N)";
1020 INPUT DD$
1030 IF DD$="N" THEN 400
1040 GOTO410
1050 PRINT"YOUR SPEEDS WERE EQUAL...YOU TIED!!"
1060 GOTO940
1100 REM STAGE
1110 REM FOR START
1120 PRINT@F,D;
1130 PRINT@F1,D;
1135 PRINT@(S2-320),"          ";
1140 IF D<>7 THEN H=1:GOTO590
1150 F=F+64:F1=F1+64
1155 IF D<=3 PRINT@(S2-320),"* STAGING *";
1160 FOR T=1TO100:NEXT
1170 PRINT@F-64,Y$;
1180 PRINT@F1-64,Y$;
1185 IF D>=7 GOTO1400
1190 D=D+1:GOTO1120
1200 REM SPEED FACTORS
1210 FOR I=1TO3
1220 FOR J=1TO2
1230 P1=RND(2)
1240 P2=RND(2)
1250 NEXT J,I
1260 IF P1=1 P1=128:KX=-97
1270 IF P1=2 P1=192:KX=-33
1280 IF P2=1 P2=128:KK=-105
1290 IF P2=2 P2=192:KK=-41
1300 IF P1=P2 THEN 1200
1305 X=A6:Y=X
1310 GOTO1600
```

```
1400 F=F3:F1=F4:H=0
1410 REM TIME LOOP BEFORE END
1415 FOR T=1TO100:NEXT
1420 GOTO590
1430 IF K=0 THEN 600
1440 IF D<>7 THEN 1460
1450 GOTO600
1460 IF X<Y THEN 1480
1470 II=1:U$=W$:GOTO1490
1480 II=2:U$=Q$
1490 PRINT@F,Y$;
1500 PRINT@F1,Y$;
1510 NN=1:GOTO600
1520 FOR I=1TO150
1530 K=PEEK(15340)
1535 IF K=0 THEN NEXT:GOTO1555
1540 GOTO590
1550 PRINT@(S2-320),"          ";
1555 PRINT@0,;
1560 PRINT"** TIME **";
1570 FOR I=1TO1000:NEXT
1580 CLS:GOTO950
1600 PRINT@A-79,"DRIVER: ";Q$;
1610 PRINT@(A1+8)-64,"DRIVER: ";W$;
1620 S1=A-14:S2=A1+9
1630 PRINT@S1,"SPEED:";
1640 PRINT@S2,"SPEED:";
1650 RETURN
1660 REM DISQUALIFIED DRIVER
1670 ON II GOTO 1680,1690
1680 PRINT Q$;:GOTO1700
1690 PRINT W$;
1700 PRINT" AUTOMATICALLY WINS THIS DRAG."
1710 ON II GOTO 1720,1730
1720 PRINT W$;:GOTO1740
1730 PRINT Q$;
1740 PRINT" HAS BEEN DISQUALIFIED !!!"
1750 II=0:U$="":NN=0
1760 GOTO940
1800 REM END
1810 CLS
1820 PRINT
1830 PRINT"END OF << DRIVER >>"
1840 END
```

War and Logic Games

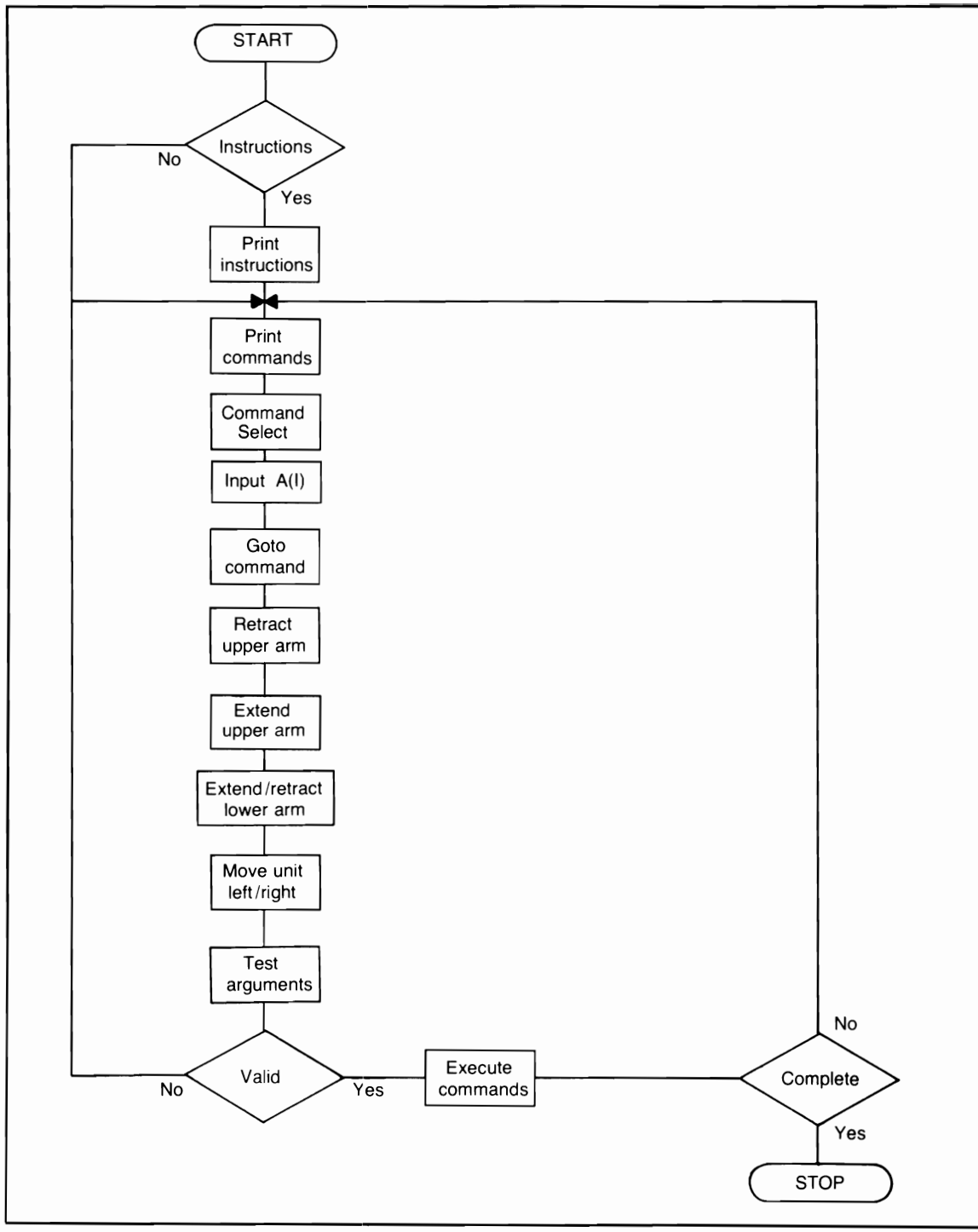
CONTROL THE ROBOT



You are in total control of a robot (that is, within a few limits). Your robot is equipped with one arm that can be shortened or lengthened and an end effector (a set of fingers) that can grasp. You have a delivery to make, so get started!!

Sample Run

```
          CONTROL THE ROBOT

SEE INSTRUCTIONS? YES
YOU WILL MOVE A COMPUTER ROBOT,
FROM THE LEFT SIDE OF YOUR
VIDEO TO THE RIGHT. ON THE
WAY YOU WILL PICK UP A DELIVERY
LOAD AND PLACE IT IN A CONVEYOR
LOCATED AT THE RIGHT SIDE OF
YOUR VIDEO. YOU WILL SEE A LIST
OF THE COMMANDS YOU CAN USE TO
CONTROL THE ROBOT. TO USE A COM-
```



Flowchart for *Control the Robot*

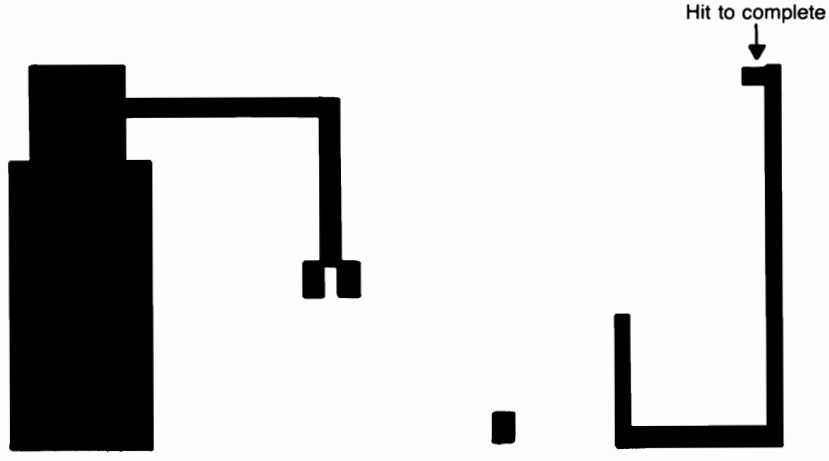
MAND, ENTER THE LETTER YOU SEE
TO THE LEFT OF THAT COMMAND.

PRESS ENTER?

THE COMPUTER WILL ASK 'HOW MANY
TIMES?' YOU WILL INPUT A NUMERAL
TO INDICATE THE NUMBER OF TIMES
YOU WANT THE ACTION REPEATED.
YOU MUST INPUT AT LEAST 3 COMMANDS
BEFORE 'RUNNING' THE ROBOT.
AFTER YOU HAVE PICKED UP THE
LOAD, TAKE IT TO THE BOX CONVEYOR,
PLACE IT INSIDE, AND RELEASE IT.
THEN BY MOVING THE ROBOT AND THE
UPPER ARM, 'HIT' THE DESIGNATED AREA
TO COMPLETE THE DELIVERY.

PRESS ENTER TO START?

(A) RETRACT UPPER ARM
(B) EXTEND UPPER ARM
(C) RETRACT LOWER ARM
(D) EXTEND LOWER ARM
(E) MOVE ROBOT TO RIGHT
(F) MOVE ROBOT TO LEFT
(G) RELEASE LOAD FROM END EFFECTOR
(H) EXECUTE COMMANDS ENTERED
(I) CANCEL PROGRAM



Program Listing

```
10 REM PROGRAM TITLE: CONTROL THE ROBOT
20 CLEAR 200:DIM A(75),T(75)
30 CLS:RANDOM
40 PRINT TAB(10);"CONTROL THE ROBOT"
50 PRINT
60 INPUT"SEE INSTRUCTIONS";X$
70 IF X$="N" THEN 310
80 PRINT
90 PRINT"YOU WILL MOVE A COMPUTER ROBOT,"
100 PRINT"FROM THE LEFT SIDE OF YOUR"
110 PRINT"VIDEO TO THE RIGHT, ON THE"
120 PRINT"WAY YOU WILL PICK UP A DELIVERY"
130 PRINT"LOAD AND PLACE IT IN A CONVEYOR"
140 PRINT"LOCATED AT THE RIGHT SIDE OF"
150 PRINT"YOUR VIDEO. YOU WILL SEE A LIST"
200 PRINT"OF THE COMMANDS YOU WILL USE TO"
205 PRINT"CONTROL THE ROBOT. TO USE A COM-"
210 PRINT"MAND, ENTER THE LETTER YOU SEE"
215 PRINT"TO THE LEFT OF THAT COMMAND."
216 PRINT
217 INPUT"PRESS ENTER";X:CLS
220 PRINT"THE COMPUTER WILL THEN ASK"
225 PRINT"'HOW MANY TIMES?' YOU WILL"
230 PRINT"INPUT A NUMERAL TO INDICATE THE"
235 PRINT"NUMBER OF TIMES YOU WANT THE"
237 PRINT"ACTION REPEATED."
240 PRINT"YOU MUST INPUT AT LEAST 3 COMMANDS"
250 PRINT"BEFORE 'RUNNING' THE ROBOT."
255 PRINT"AFTER YOU HAVE PICKED UP THE"
260 PRINT"LOAD, TAKE IT TO THE BOX CONVEYOR"
265 PRINT"PLACE IT INSIDE, AND RELEASE IT."
270 PRINT"THEN, BY MOVING THE ROBOT AND THE"
275 PRINT"UPPER ARM, 'HIT' THE DESIGNATED AREA"
280 PRINT"TO COMPLETE THE DELIVERY."
290 PRINT
300 INPUT"PRESS ENTER TO START";X
310 CLS
340 Q=0
350 PRINT@Q,"(A) RETRACT UPPER ARM"
360 GOSUB550
370 PRINT@Q,"(B) EXTEND UPPER ARM"
380 GOSUB550
```

```
390 PRINT@Q,"(C) RETRACT LOWER ARM"
400 GOSUB550
410 PRINT@Q,"(D) EXTEND LOWER ARM"
420 GOSUB550
430 PRINT@Q,"(E) MOVE ROBOT TO RIGHT"
440 GOSUB550
450 PRINT@Q,"(F) MOVE ROBOT TO LEFT"
460 GOSUB550
470 PRINT@Q,"(G) RELEASE LOAD FROM END EFFECTOR"
480 GOSUB550
490 PRINT@Q,"(H) EXECUTE COMMANDS ENTERED"
500 GOSUB550
510 PRINT@Q,"(I) CANCEL PROGRAM"
540 GOTO580
550 Q=Q+64:RETURN
580 GOTO1100
600 REM COMMANDS READY
610 I=1
630 ON A(I) GOTO 635,690,790,850,920,1000,1430,1300,2700
635 IF M<=15 GOSUB1200:GOTO2000
640 REM RETRACT UPPER ARM
645 FOR X=M+1TOM-1:RESET(X,K+1):NEXT:M=M-1
650 FOR X=JTOM:SET(X,K+1):NEXT
655 FOR X=N1TON:RESET(M+1,X):NEXT
660 FOR X=N1TON:SET(M,X):NEXT
665 RESET(M,N+1):RESET(M+2,N+1)
670 RESET(M,N+2):RESET(M+2,N+2)
675 SET(M-1,N+1):SET(M+1,N+1)
676 IF TR=1 SET(M,N+1)
680 GOTO1300
690 REM EXTEND UPPER ARM
700 IF ABS(M-J)>=12 GOSUB1200:GOTO2000
710 FOR X=J+12TOM-1:RESET(X,K+1):NEXT
720 FOR X=JTOM+1:SET(X,K+1):NEXT:M=M+1
725 IF TT=1 AND POINT(X,K+1) THEN 1940
726 IF TT=0 AND POINT(X,K+1) THEN 1975
727 IF TT=0 AND TR=0 AND POINT(V3-1,V4) THEN 1610
730 FOR X=N1+1TON:RESET(M-1,X):NEXT
740 FOR X=N1+1TON:SET(M,X):NEXT
742 IF POINT(M+1,X) THEN 2500
745 M=M-1
750 RESET(M-1,N+1):RESET(M+1,N+1)
760 SET(M,N+1):SET(M+2,N+1)
```

```
765 IF TR=1 SET(M+1,N+1)
770 M=M+1
780 GOTO1300
790 REM RETRACT LOWER ARM
795 IF N<=35 GOSUB1200:GOTO2000
800 FOR X=N1TON:RESET(M,X):NEXT:N=N-1
810 FOR X=N1TON:SET(M,X):NEXT
815 IF TR=1 RESET(M,N+2)
820 RESET(M-1,N+2):RESET(M+1,N+2)
830 SET(M-1,N+1):SET(M+1,N+1)
835 IF TR=1 SET(M,N+1)
840 GOTO1300
850 REM EXTEND LOWER ARM
860 IF N>=40 GOSUB1200:GOTO2000
870 FOR X=N1TON:RESET(M,X):NEXT:N=N+1
880 FOR X=N1TON:SET(M,X):NEXT
885 IF TR=1 AND POINT(M-2,N+1) THEN 2500
888 IF TR=1 AND POINT(M+2,N+1) THEN 2500
890 RESET(M-1,N):RESET(M+1,N)
895 IF TR=1 SET(M,N+1)
900 SET(M-1,N+1):SET(M+1,N+1)
905 IF MM=0 AND POINT(M,N+1) THEN 1400
910 IF POINT(V3,V4-1) THEN 1600
915 GOTO1300
920 REM MOVE UNIT TO RIGHT
950 FOR X=V1TOV2:RESET(V,X)
955 SET(V+6,X):NEXT
960 V1=V2+1:V2=V2+6:V=V-2
970 FOR X=V1TOV2:RESET(V,X)
975 SET(V+10,X):NEXT
980 IF V=65 THEN HL=39 ELSE HL=40
985 J=J+1
990 V=V+3:V1=V1-3:V2=V2-6
995 GOTO710
1000 REM MOVE UNIT TO LEFT
1005 IF V<=3 GOSUB1200:GOTO2000
1010 FOR X=V1TOV2:RESET(V+5,X)
1015 SET(V-1,X):SET(V+5,K+1):NEXT
1020 V1=V2+1:V2=V2+6:V=V-3
1025 FOR X=V1TOV2:RESET(V+10,X)
1030 SET(V,X):NEXT
1035 J=J-1
```

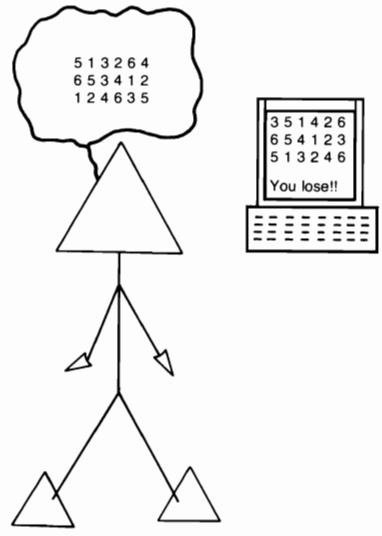
```
1040 V=V+2:V1=V1-3:V2=V2-6
1045 GOTO635
1100 J=4:K=36:L=41
1110 FOR X=KTOL:SET(J,X):NEXT
1115 IF J<=12 THEN J=J+1:GOTO1110
1120 J=6:L=K:K=K-3
1125 FOR X=KTOL:SET(J,X):NEXT
1130 IF J<=10 THEN J=J+1:GOTO1125
1135 FOR X=JTOJ+14:SET(X,K+1):NEXT
1140 FOR X=K+1TOK+5:SET(J+14,X):NEXT
1145 SET(J+13,K+6):SET(J+15,K+6)
1150 M=J+14:N=K+5:N1=N-4
1155 V=J-5:V1=K:V2=L-1:V3=40:V4=41
1158 Q=896
1159 GOSUB1700:GOTO2000
1200 REM INVALID COMMAND
1210 PRINT@Q+79,"I N V A L I D  C O M M A N D";
1220 FOR T=1TO1200:NEXT
1230 PRINT@Q+79,"                    ";
1240 RETURN
1300 REM ADVANCE COUNTER
1305 REM EXECUTE COMMANDS
1310 IF I<W THEN 1330
1320 GOTO2000
1330 I=I+1
1335 PRINT@Q,"EXECUTING";XX;"COMMANDS."
1340 GOTO630
1400 TR=1
1410 SET(M,N+1)
1420 GOTO1300
1430 IF TR=1 TR=0:GOTO1470
1440 GOSUB2020
1450 PRINT"END EFFECTOR EMPTY..."
1460 PJ=1:GOTO2320
1470 WW=N+1
1480 RESET(M,WW)
1490 IF WW<=HL THEN HJ=1:GOTO1510
1500 SET(M,WW)
1505 GOTO1800
1510 WW=WW+1
1520 SET(M,WW):GOTO1480
1600 REM LOAD CRUSHED
1610 GOSUB2020
1620 PRINT"YOU HAVE CRUSHED THE LOAD !!"
```

```
1630 GOSUB2540
1640 PRINT@Q,"                    ";
1645 IF PL=1 PL=0:TR=0:GOTO310
1650 GOSUB2020
1660 PRINT"YOU'LL HAVE TO START OVER..."
1670 PL=1:GOTO1630
1700 FOR X=V3+40TOV3+50
1710 SET(X,V3+1):NEXT
1720 FOR X=V2+3TOV2+5
1730 SET(V3+40,X):NEXT
1740 FOR X=V2-1TOV2+5
1750 SET(V3+50,X):NEXT
1755 SET(V3+48,V2-1):SET(V3+49,V2-1)
1760 PRINT@Q-192+46,CHR$(93);" HIT TO COMPLETE";
1765 GOSUB1900
1770 RETURN
1800 REM LOAD RELEASED
1810 TR=0:TT=1
1820 IF HJ=1 THEN 1850
1830 SET(M,WW-1)
1840 GOTO1300
1850 GOSUB2020
1855 PRINT"YOU HAVE DAMAGED THE "
1860 GOSUB2540:GOSUB2020
1865 PRINT"DELIVERY LOAD BY    "
1870 GOSUB2540:GOSUB2020
1875 PRINT"NEEDLESSLY DROPPING IT !!!"
1880 GOSUB2540:GOSUB2020
1885 PRINT"                    "
1890 GOTO1650
1900 V3=RND(75)
1910 IF V3<=30 THEN 1900
1920 SET(V3,V4)
1930 RETURN
1940 REM COMPLETED
1945 GOSUB2020
1950 PRINT"VERY WELL DONE !!!    "
1955 GOSUB2540
1960 GOSUB2020
1965 PRINT"DELIVERY COMPLETED..."
1970 GOSUB2540:GOTO2700
1975 GOSUB2020
1980 PRINT"YOU HAVE FAILED TO DELIVER"
1985 GOSUB2540
```

```
1986 IF PK=1 PK=0:GOTO1650
1990 GOSUB2020
1995 PRINT"THE REQUIRED LOAD !!!     "
1996 PK=1:GOTO1985
2000 REM ENTRY COMMANDS
2005 I=1:XX=0
2010 GOSUB2020:GOTO2030
2020 PRINT@Q,;:RETURN
2030 REM COMMANDS
2040 IF I<=1 PRINT"ENTER YOUR COMMANDS";:GOTO2050
2045 PRINT"LETTER ( ) COMMAND";
2050 INPUT A$
2055 IF A$="" GOSUB1200:GOSUB2020:GOTO2040
2060 A(I)=ASC(A$)-64
2065 IF A(I)<=0 GOSUB1200:GOSUB2020:GOTO2040
2070 IF A(I)=8 THEN 2300
2075 IF A(I)=7 T(I)=1:GOTO2230
2076 IF A(I)=9 THEN 2700
2080 GOTO2200
2090 GOSUB2020
2100 PRINT"DATA IN MEMORY.....    ";
2110 FOR QQ=1TO350:NEXT
2120 GOSUB2020
2140 GOTO2040
2200 PRINT@Q,"                    ";
2205 GOSUB2020
2210 PRINT"HOW MANY TIMES";
2220 INPUT T(I)
2222 IF T(I)<=0 GOSUB1200:GOTO2010
2225 IF T(I)>=26 GOSUB1200:GOTO2010
2230 W=I:Y=1:XX=XX+1
2240 A(W)=A(I)
2250 IF Y<>T(I) THEN 2270
2260 I=W+1:GOTO2090
2270 Y=Y+1:W=W+1
2280 GOTO2240
2300 GOSUB2020
2305 IF XX<=2 THEN 2400
2310 PRINT"DATA PROCESSED - ROBOT READY."
2320 GOSUB2540
2330 PRINT@Q,"                          ";
2335 IF PJ=1 PJ=0:GOTO2010
2340 W=I
```

```
2350 GOTO600
2400 PRINT"NOT ENOUGH DATA ENTRYS..."
2410 GOSUB2540
2420 PRINT@Q,"                    ";
2430 GOSUB2020
2440 PRINT"CONTINUE PLEASE."
2450 PJ=1
2460 GOTO2320
2500 REM DAMAGED END EFFECTOR
2510 GOSUB2020
2520 PRINT"YOU HAVE DAMAGED THE END"
2530 GOSUB2540:GOTO2550
2540 FOR QQ=1TO900:NEXT:RETURN
2550 GOSUB2020
2560 PRINT"EFFECTOR...AND CRUSHED THE"
2570 GOSUB2540:GOSUB2020
2580 PRINT"DELIVERY LOAD...       "
2590 GOSUB2540
2600 GOTO1650
2700 GOSUB2020
2710 PRINT"PROGRAM TERMINATED...  "
2720 REM PRESS 'BREAK' TO END
2730 GOTO2730
```

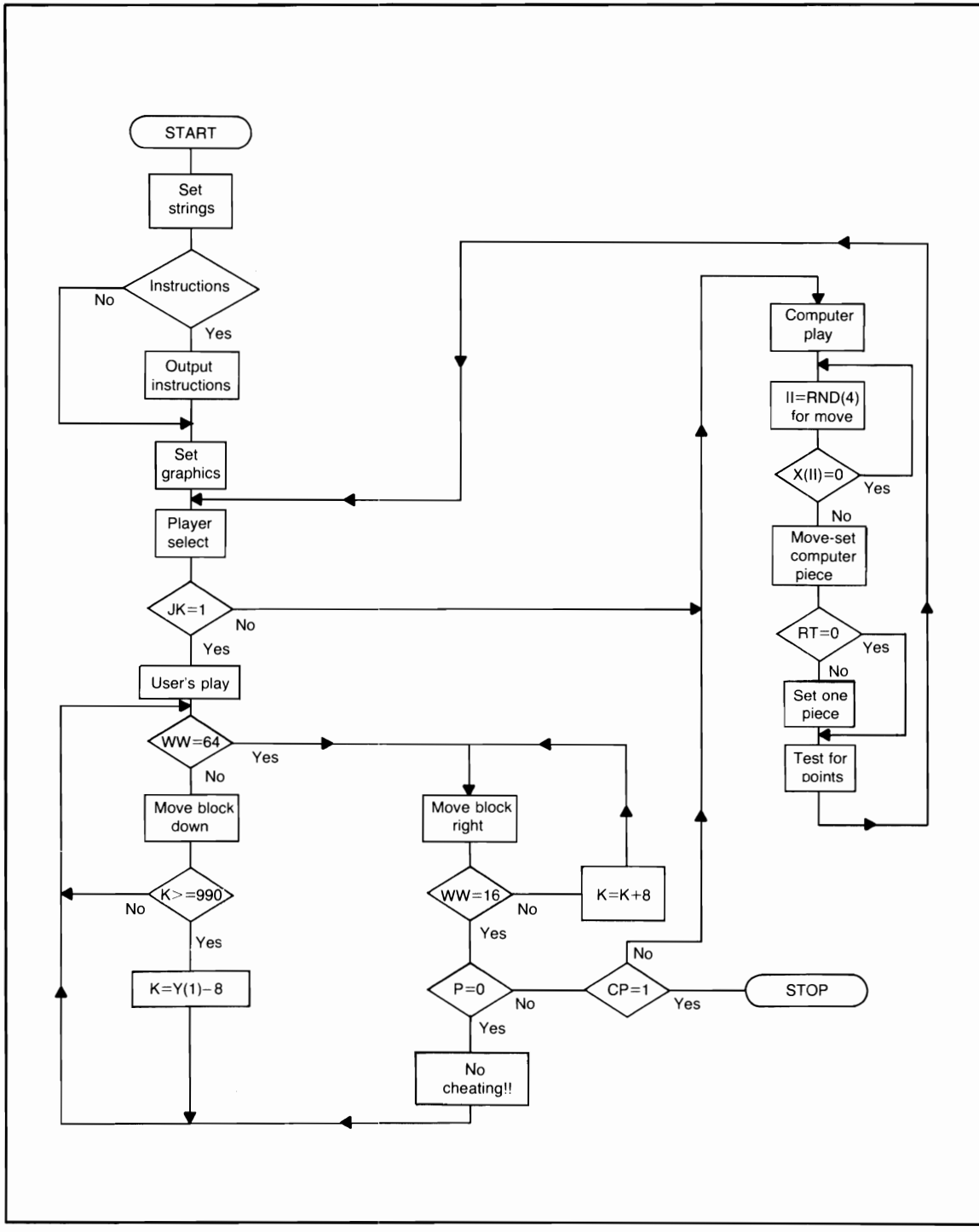
RANDOM WAR WITH YOUR COMPUTER



Prime objective: to match your computer by placing blocks exactly where it did. You won't get by with cheating! You'll understand why the word "war" was included in the title after you have played one game.

Sample Run

```
RANDOM WAR WITH YOUR COMPUTER

INSTRUCTIONS ?YES

THE GAME IS QUITE SIMPLE: YOU WILL
BE AT WAR WITH YOUR COMPUTER'S
RANDOM FUNCTION. THE PLAYING FIELD
WILL HAVE 6 ROWS (A-F) AND 4 COLUMNS
(1-4). THE COMPUTER WILL PLAY FIRST.
IT WILL RANDOMLY PLACE BLOCKS ON
EACH COLUMN (1-4) IN ROW 'A'. (YOU
WILL NOT SEE THESE. YOU WILL THEN
PLAY. USE THE RIGHT ARROW KEY
TO MOVE YOUR BLOCK RIGHT (INTO
A ROW), THEN USING THE DOWN ARROW
KEY TO STOP YOUR BLOCK WHERE-
EVER YOU THINK THE COMPUTER HAS
PLACED ONE.
```



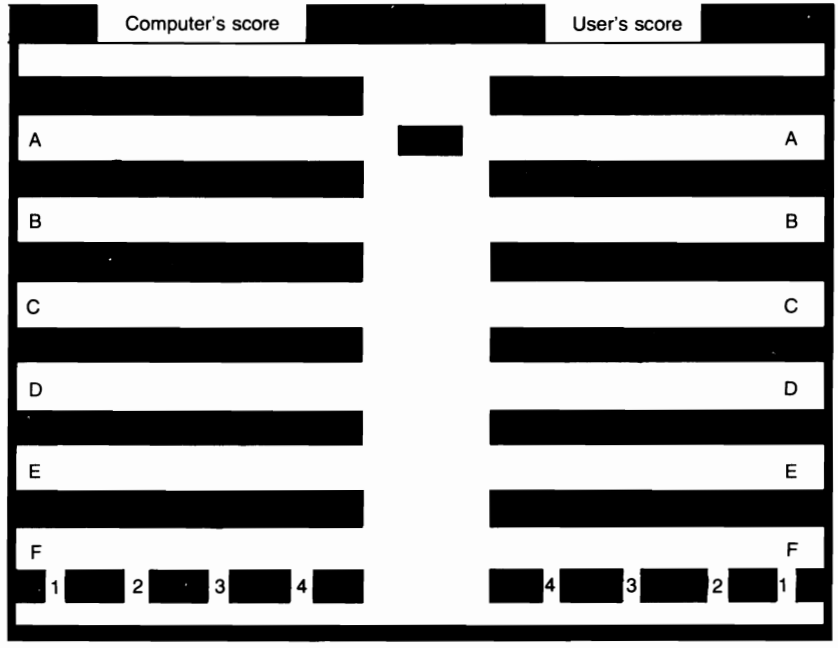
Flowchart for *Random War with your Computer*

PRESS ENTER?

AFTER YOU HAVE PLACED YOUR 4 BLOCKS
THE COMPUTER WILL CHECK TO SEE
IF YOU HAVE MADE ANY POINTS (50
POINTS FOR EACH CORRECT PLACEMENT).
YOU WILL THEN PLACE 4 BLOCKS IN ROW
'B'. THEN THE COMPUTER WILL TRY TO
GUESS WHERE YOUR'S ARE. THIS WILL CONTINUE
UNTIL ALL ROWS HAVE BEEN USED.
YOU WILL THEN SEE THE FINAL
SCORE (AND WHO WON).

PRESS ENTER TO BEGIN?

YOUR FIRST NAME? USER



Program Listing

```
10 REM PROGRAM TITLE: RANDOM WAR
20 REM WITH YOUR COMPUTER
30 CLS:PQ=1:RANDOM
```

```
40 P$="MY PLAY":P1$="YOUR PLAY"
50 TX=70
60 PRINTTAB(10);"RANDOM WAR WITH YOUR COMPUTER"
65 PRINT
70 INPUT"INSTRUCTIONS";X$
75 IF X$="NO" THEN PRINT:GOTO190
80 PRINT
85 PRINT"THE GAME IS QUITE SIMPLE: YOU WILL"
90 PRINT"BE AT WAR WITH YOUR COMPUTER'S"
95 PRINT"RANDOM FUNCTION. THE PLAYING FIELD"
100 PRINT"WILL HAVE 6 ROWS (A-F) AND 4 COLUMNS"
105 PRINT"(1-4). THE COMPUTER WILL PLAY FIRST."
110 PRINT"IT WILL RANDOMLY PLACE BLOCKS ON"
115 PRINT"EACH COLUMN (1-4) IN ROW 'A'. (YOU"
120 PRINT"WILL NOT SEE THESE.) YOU WILL THEN"
125 PRINT"PLAY, USING THE RIGHT ARROW KEY"
130 PRINT"TO MOVE YOUR BLOCK RIGHT (INTO"
135 PRINT"A ROW), THEN USING THE DOWN ARROW"
140 PRINT"KEY, TO STOP YOUR BLOCK WHERE-"
145 PRINT"EVER YOU THINK THE COMPUTER HAS"
150 PRINT"PLACED ONE."
151 INPUT"PRESS ENTER";XX:CLS
155 PRINT"AFTER YOU HAVE PLACED YOUR 4 BLOCKS"
160 PRINT"THE COMPUTER WILL CHECK TO SEE"
165 PRINT"IF YOU HAVE MADE ANY POINTS (50"
170 PRINT"POINTS FOR EACH CORRECT PLACEMENT)."
175 PRINT"YOU WILL THEN PLACE 4 BLOCKS IN ROW"
180 PRINT"'B', THEN THE COMPUTER WILL TRY TO"
185 PRINT"GUESS WHERE YOURS ARE. THIS WILL
    CONTINUE"
186 PRINT"UNTIL ALL ROWS HAVE BEEN USED"
187 PRINT"(A-F). YOU WILL THEN SEE THE FINAL"
188 PRINT"SCORE (AND WHO WON)."
189 INPUT"PRESS ENTER TO BEGIN";XX:PRINT
190 INPUT"YOUR FIRST NAME";A$
195 CLS
200 FOR X=0TO47:SET(0,X):SET(1,X)
210 SET(126,X):SET(127,X):NEXT
220 FOR X=0TO127:SET(X,0):SET(X,1)
230 SET(X,46):SET(X,47):NEXT
235 GOSUB1100
240 Y=6
250 FOR X=0TO127:SET(X,Y)
```

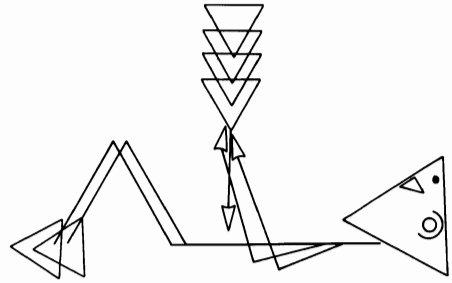
```
260 IF X=50 X=74
270 NEXT
280 IF Y<=36 THEN Y=Y+6:GOTO250
290 V=65:J=193:I=1
300 PRINT@J,CHR$(V);
305 PRINT@J+60,CHR$(V);
310 A(I)=ASC(CHR$(V))-64:M(I)=A(I)
312 J(I)=I:K(I)=I
315 IF J=833 THEN 350
320 V=V+1:J=J+128:I=I+1
330 GOTO300
350 M=1:U=4:J=J+66:I=1
360 PRINT@J,M;
365 PRINT@J+36,U;
370 X(I)=M:Q(I)=X(I)
375 IF M<=3 THEN 390
380 GOTO410
390 M=M+1:U=U-1
395 J=J+6:I=I+1
400 GOTO360
410 X$=STRING$(4,143)
420 C=195:Y=230
430 FOR I=1TO4
440 C(I)=C:C=C+6
450 Y(I)=Y:Y=Y+6
460 NEXT
490 GOTO540
500 REM WHOSE PLAY
510 IF JK=1 JK=0:RT=0:GOTO540
515 JK=1
520 PRINT@A1,"      ";
530 PRINT@A2,P1$;:GOTO700
540 PRINT@A2,"       ";
550 PRINT@A1,P$;
600 REM COMPUTER'S PLAY
605 G=1:CP=1:W=W+1:TX=TX-10
606 IF TX<=0 TX=0
610 II=RND(4)
620 IF X(II)=0 THEN 610
625 P(G)=(W-1)*128+C(II)
630 X(II)=0:IF RT=0 THEN KL=1:GOTO640
635 PRINT@P(G),X$;
640 FOR T=1TO100:NEXT
645 N$(G)=CHR$(W+64):N(G)=II
```

```
650 IF G<=3 THEN G=G+1:GOTO610
655 IF PQ=10 THEN JX=2:GOTO1280
660 FOR I=1TO4:X(I)=I:NEXT
670 IF RT=1 THEN JX=1:GOTO1280
675 IF P=0 PQ=PQ+1:GOTO500
700 REM USERS PLAY
705 P=0
710 K=Y(1)-8:I=1
720 PRINT@K,X$;
725 FOR T=1TOTX
730 WW=PEEK(15340)
740 IF WW=64 THEN 800
745 NEXT
750 K=K+128
760 PRINT@K-128,"   ";
770 IF K>=990 THEN 795
790 I=I+1:GOTO720
795 GOTO710
800 REM MOVE RIGHT
805 IF PQ>=1 AND K(I)=0 THEN 1165
810 GOTO1150
815 PRINT@K,"    ";
820 K=K+8:II=4
825 PRINT@K,X$;
830 FOR T=1TO25
835 WW=PEEK(15340)
840 IF WW=16 THEN P=P+1:GOTO900
845 NEXT
850 PRINT@K,"   ";:IF RT=1 GOSUB1050
860 II=II-1
870 IF II<=0 THEN 910
880 K=K+6
890 GOTO825
900 IF Q(II)=0 THEN 1165
905 GOSUB1000
910 IF P>=4 THEN 930
920 GOTO710
930 K(VX)=0:IF CP<>1 RT=1:GOTO1500
940 REM GOTO SCORE TOTAL
950 GOTO1200
1000 KK(P)=K
1010 H$(P)=CHR$((I)+64)
1020 H(P)=II:Q(II)=0
1030 RT=1
```

```
1035 IF P=1 THEN VX=K(I)
1040 RETURN
1050 FOR U=1TOP
1055 IF KK(U)=0 THEN 1065
1060 PRINT@KK(U),X$;
1065 NEXT
1070 RETURN
1100 REM PRINT @ AREAS
1110 PRINT@2," COMPUTER'S SCORE ";
1120 PRINT@45," ";A$;"'S SCORE ";
1130 A1=82:A2=102
1140 RETURN
1150 REM CHEATING ?
1152 IF P=0 THEN 1160
1155 IF I<>VX THEN 1165
1160 GOTO815
1165 PRINT@A2-77," * NO CHEATING * ";
1170 FOR T=1TO1000:NEXT
1180 FOR T=40TO85:SET(T,0)
1185 SET(T,1):NEXT
1190 GOTO750
1200 REM SCORE TOTAL
1205 PQ=PQ+1
1210 IF KL=1 KL=0:GOTO1225
1220 GOTO1250
1225 I=1
1230 PRINT@P(I),X$;:FOR T=1TO200:NEXT
1240 IF I<=3 THEN I=I+1:GOTO1230
1250 PRINT@A1,"      ";
1260 PRINT@A2,"       ";
1270 IF JK=1 THEN 1330
1280 FOR I=1TO4
1290 IF N$(I)=H$(I) AND N(I)=H(I) THEN 1305
1300 NEXT:GOTO1310
1305 X2=X2+50:GOTO1300
1310 PRINT@A1-10,X2;
1315 IF JX=2 THEN 1600
1320 IF JX=1 JX=0:GOTO675
1325 GOTO1500
1330 REM USERS POINTS
1340 FOR I=1TO4
1350 IF H$(I)=N$(I) AND H(I)=N(I) THEN 1370
1360 NEXT:GOTO1380
1370 X4=X4+50:GOTO1360
```

```
1380 PRINT@A2+10,X4;
1500 IF PQ<=9 THEN 1520
1505 IF JJ=1 THEN 1600
1510 JJ=1:GOTO1210
1520 REM ANOTHER ROUND
1530 FOR I=1TO4
1540 Q(I)=I
1550 NEXT
1560 KL=0:P=0
1570 IF JK=1 JK=0:CP=0:GOTO520
1580 IF JK=0 JK=1:RT=1:P=0:GOTO540
1600 REM FINISH -- TOTAL SCORE
1605 PRINT@A1,"      ";:PRINT@A1+7,;
1606 PRINT"*** FINISH ***";
1610 FOR T=1TO2000:NEXT
1620 CLS:PRINTCHR$(23)
1630 IF X2=X4 THEN 1690
1640 IF X2>X4 THEN 1720
1650 PRINT"YOU HAVE DEFEATED THE COMPUTER"
1660 PRINT"IN THE WAR..."
1670 PRINT"VERY WELL DONE."
1680 GOTO1750
1690 PRINT"YOU HAVE TIED WITH YOUR"
1700 PRINT"COMPUTER, SCORE EVEN:"
1705 PRINT X2;"TO";X4;"....."
1710 GOTO1750
1720 PRINT"SORRY ";A$;" YOU HAVE LOST..."
1730 PRINT"RANDOM WAR GAMES JUST AREN'T"
1740 PRINT"FOR YOU."
1750 END
```

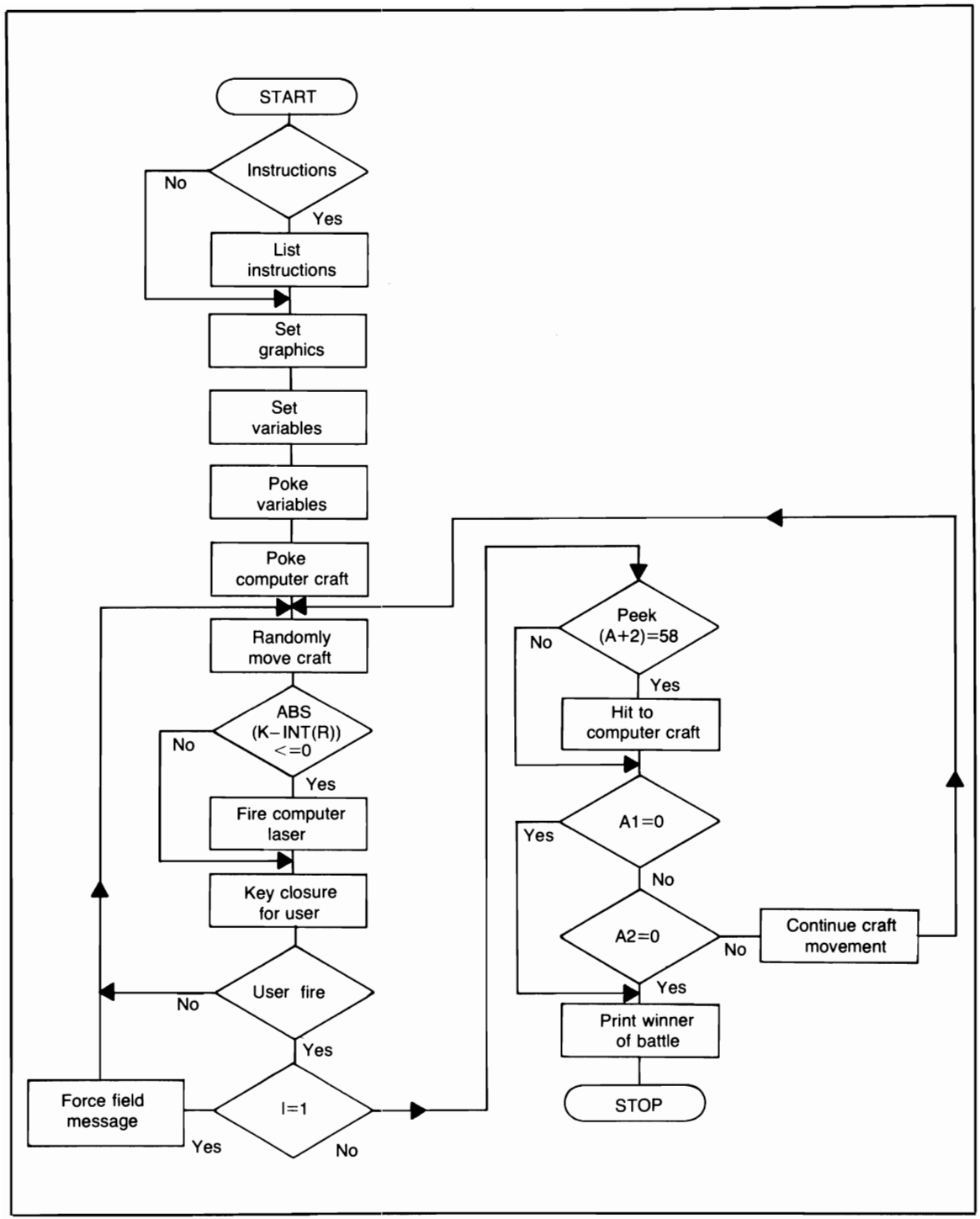
UNDER ATTACK



Under Attack is a fast-paced game that will keep you alert at all times. You have the weapons to destroy the computer craft that is attacking you, but the computer craft is equipped with a force field and you are not. But then again, you do have the advantage of being able to move your cannon to the far right of the video, where the computer craft is not able to fire upon you. Good Luck, captain...

Sample Run

```
UNDER ATTACK

NEED INSTRUCTIONS (Y/N)? Y

YOU WILL BE UNDER ATTACK BY A
COMPUTER CONTROLLED SPACE CRAFT
THAT WILL MOVE ABOUT YOUR VIDEO
IN A PRESET PATTERN. YOU WILL
BEGIN WITH 100 UNITS OF
LASER POWER. ONLY WHEN BOTH OF
YOU HAVE EXHAUSTED YOUR POWER WILL
THE ATTACK END. THE ONE WITH THE
MOST HITS PER RUN WILL BE
THE WINNER OF THE BATTLE. AS THE
COMPUTER CRAFT MOVES ABOUT THE
VIDEO, YOU WILL NOTICE THREE

PRESS ENTER?

DOWN ARROWS FLASHING UNDER THE
CRAFT, THIS IS THE CRAFTS 'FORCE
FIELD', MEANING YOU CANNOT HIT
THE CRAFT WHEN THESE ARROWS ARE 'ON'.
```



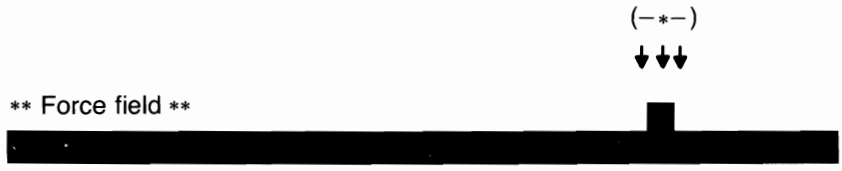
Flowchart for *Under Attack*

YOUR LASER CANNON IS LOCATED AT
THE LOWER RIGHT OF THE VIDEO. TO
MOVE THE CANNON LEFT (TO A CER-
TAIN POINT) PRESS THE 'L' KEY.
TO MOVE IT RIGHT, PRESS THE 'R' KEY.
TO FIRE YOUR LASER, PRESS THE
SPACE BAR. YOUR LASER MUST HIT
THE COMPUTER DIRECTLY IN
THE CENTER (WHERE THE ASTERISK IS LOCATED)
TO COUNT AS A HIT.

PRESS ENTER?

REMEMBER, THE ATTACK WILL NOT
END UNTIL BOTH OF YOU HAVE
EXHAUSTED YOUR SUPPLY OF LASER
POWER.....

PRESS ENTER NOW TO BEGIN THE ATTACK?



Program Listing

```
10 REM PROGRAM TITLE: UNDER ATTACK
20 CLS:RANDOM
30 A1=100:A2=A1
40 CLS
50 PRINT TAB(15);"UNDER ATTACK"
60 PRINT
70 INPUT"NEED DIRECTIONS (Y/N)";X$
80 IF X$="N" THEN 270
90 PRINT
100 PRINT"YOU WILL BE UNDER ATTACK BY A"
105 PRINT"COMPUTER CONTROLLED SPACE CRAFT"
110 PRINT"THAT WILL MOVE ABOUT YOUR VIDEO"
115 PRINT"IN A PRESET PATTERN. YOU WILL"
120 PRINT"BOTH BEGIN WITH 100 UNITS OF"
125 PRINT"LASER POWER, ONLY WHEN BOTH OF"
```

```
130 PRINT"YOU HAVE EXHAUSTED THIS POWER THE"
135 PRINT"ATTACK WILL END. THE ONE WITH THE"
140 PRINT"MOST HITS PER RUN WILL BE"
145 PRINT"THE WINNER OF THE BATTLE. AS THE"
150 PRINT"COMPUTER CRAFT MOVES ABOUT THE"
155 PRINT"VIDEO YOU WILL NOTICE THREE"
160 INPUT"PRESS ENTER";XX:CLS
165 PRINT"DOWN ARROWS FLASHING UNDER THE"
170 PRINT"CRAFT, THIS IS THE CRAFTS 'FORCE"
175 PRINT"FIELD', MEANING YOU CANNOT HIT"
180 PRINT"THE CRAFT WHEN THESE ARROWS ARE 'ON'."
185 PRINT"YOUR LASER CANNON IS LOCATED AT"
190 PRINT"THE LOWER RIGHT OF THE VIDEO. TO"
195 PRINT"MOVE THE CANNON LEFT (TO A CER-"
200 PRINT"TAIN POINT) PRESS THE 'L' KEY."
205 PRINT"TO MOVE IT RIGHT, PRESS THE 'R' KEY."
210 PRINT"TO FIRE YOUR LASER, PRESS THE"
215 PRINT"'SPACE BAR'. YOUR LASER MUST HIT"
220 PRINT"THE COMPUTER CRAFT DIRECTLY IN"
225 PRINT"THE CENTER (WHERE THE ASTERISK"
230 PRINT"IS LOCATED) TO COUNT AS A HIT."
235 INPUT"PRESS ENTER";XX:CLS
240 PRINT"REMEMBER, THE ATTACK WILL NOT"
245 PRINT"END UNTIL BOTH OF YOU HAVE"
250 PRINT"EXHAUSTED YOUR SUPPLY OF LASER"
255 PRINT"POWER....."
260 PRINT
265 INPUT"PRESS ENTER NOW TO BEGIN THE ATTACK";XX
270 CLS
300 REM BOUNDARIES
310 FOR X=0TO127
320 SET(X,45):SET(X,46)
330 SET(X,47):NEXT
340 K=126:E=43:F=959:L$=":":AA=896
345 GOSUB350:GOTO400
350 SET(K,E):SET(K+1,E)
360 SET(K,E+1):SET(K+1,E+1)
370 RETURN
400 REM COMPUTER CRAFT
410 REM POKE GRAPHICS
420 A=15424:V=40:W=45:U=42:Z=32:R=0
430 POKE A,V:POKE A+1,W:Q=Q+1
440 POKE A+2,U:POKE A+3,W
```

```
450 POKE A+4,V+1
455 I=RND(5):IF I=1 THEN 570
460 A$=INKEY$
465 IF A1=0 AND A2=0 THEN 1900
470 GOTO1100
480 IF Q=55 J=4
490 IF A=15769 THEN 590
500 GOSUB520:IF J=0 THEN A=A+69:R=R+10.9:GOTO430
510 GOTO550
520 POKE A,Z:POKE A+4,Z
530 POKE A+2,Z:POKE A+3,Z
540 POKE A+1,Z:IF I=1 THEN 560
545 RETURN
550 ON J GOTO 590,620,650,700,740,780,810
560 POKE A+64,Z:POKE A+66,Z:POKE A+68,Z
565 GOTO545
570 REM FORCE FIELD
580 POKE A+64,92:POKE A+66,92:POKE A+68,92
585 GOTO460
590 IF A=15801 THEN 620
595 IF ABS(K-INT(R))=0 GOSUB900
600 GOSUB520:A=A+4:R=R+8
610 J=1:GOTO430
620 IF A=15545 THEN 650
630 GOSUB520:A=A-64
640 J=2:GOTO430
650 IF A=15489 THEN 680
655 IF ABS(K-INT(R))<=0 GOSUB900
660 GOSUB520:A=A-2:R=R-4
670 J=3:GOTO430
680 IF M=1 M=0:Q=0:R=0
690 J=0:GOTO420
700 IF A=15899 THEN 740
710 GOSUB520:A=A+64
720 IF Q=59 THEN 780
730 GOTO430
740 IF A=15525 THEN 770
745 IF ABS(K-INT(R))<=0 GOSUB900
750 GOSUB520:A=A-64
760 J=5:GOTO430
770 J=3:M=1:GOTO430
780 IF A=16117 THEN 810
785 IF ABS(K-INT(R))<=0 GOSUB900
790 GOSUB520:A=A+4:R=R+8
```

```
800 J=6:GOTO430
810 IF A=16101 THEN Q=59:GOTO740
815 IF ABS(K-INT(R))<=0 GOSUB900
820 GOSUB520:A=A-4:R=R-8
840 J=7:GOTO430
900 REM COMPUTER LASER
905 A2=A2-RND(10)
910 IF A2<=0 A2=0:RETURN
915 A=A
920 POKE A,V:POKE A+1,W
930 POKE A+3,W:POKE A+4,V+1
940 L=A+2
950 IF L<=15360 THEN 915
955 IF A<=15521 THEN 1015
960 POKE L,Z
970 IF L<=16128 THEN L=L+192:POKE L,U:GO1
975 L=L+64:POKE L,U
980 IF POINT(K,E)+POINT(K+1,E)=0 GOSUB103
990 IF L>=16290 THEN 1010
1000 GOTO960
1010 REM SET USER CANNON
1015 GOSUB350:RETURN
1020 GOTO800
1030 REM HIT TO USER
1035 PRINT@AA,;
1040 PRINT"*** YOU HAVE TAKEN A HIT ***";
1045 FOR I=1TO1000:NEXT
1050 PRINT@AA,;
1055 PRINT"                    ";
1060 A4=A4+1
1065 GOTO1700
1070 RETURN
1100 REM USERS MOVE
1110 REM MOVE PYLON / FIRE LASER
1120 IF A$="R" THEN 1160
1130 IF A$="L" THEN 1240
1140 IF A$=" " THEN 1300
1150 IF MM=0 GOTO480
1155 IF MM=1 MM=0:GOTO1015
1160 IF K>=126 THEN 1280
1165 GOTO1180
1170 IF K<=79 THEN 1280
1180 RESET(K,E):RESET(K+1,E)
1190 RESET(K,E+1):RESET(K+1,E+1)
```

```
1200 IF JJ=1 K=K-4:F=F-2 ELSE K=K+4:F=F+2
1210 SET(K,E):SET(K+1,E)
1220 SET(K,E+1):SET(K+1,E+1)
1230 GOTO1280
1240 REM MOVE CANNON LEFT
1250 JJ=1
1260 GOTO1170
1280 IF JJ=1 JJ=0
1290 IF MM=0 GOTO480
1295 IF MM=1 MM=0:GOTO1015
1300 REM FIRE LASER (USER)
1302 IF I=1 THEN 1600
1305 FF=F:A1=A1-RND(10)
1308 IF A1<=0 A1=0:GOTO1380
1310 IF F<=100 THEN 1370
1315 IF PEEK(A+2)=58 THEN 1400
1320 PRINT@F," ";
1330 F=F-64
1340 PRINT@F,L$;
1350 GOTO1310
1370 PRINT@F," ";
1380 F=FF
1390 GOSUB350:GOTO1280
1400 REM EXPLODE COMPUTER CRAFT
1405 C=A+4:POKE A+2,Z:PL=A:A3=A3+1
1410 IF J=1 AND C>=15807 THEN 1500
1415 IF J=2 AND C>=15551 THEN 1500
1420 IF J=3 AND C>=15551 THEN 1500
1425 IF J=4 AND C>=15807 THEN 1500
1430 IF J=5 AND C>=15551 THEN 1500
1435 IF J=6 AND C>=16127 THEN 1500
1440 IF J=7 AND C>=16127 THEN 1500
1460 POKE A,Z:POKE C,Z
1470 A=A-1:C=C+1
1480 POKE A,V:POKE C,V+1
1490 FOR TI=1TO15:NEXT:GOTO1410
1500 POKE A,Z:POKE C,Z
1510 T=1:A=PL:G=RND(5)
1520 POKE A+1,Z:POKE A+3,Z
1530 FOR TI=1TO200:NEXT
1540 POKE A+1,W:POKE A+3,W
1550 FOR TI=1TO200:NEXT
1560 IF T<=G THEN T=T+1:GOTO1520
1570 POKE A+1,Z:POKE A+3,Z
```

```
1580 GOSUB1700
1590 GOTO1380
1600 REM FORCE FIELD UP
1610 PRINT@AA,"** F O R C E  F I E L D **";
1620 FOR TI=1TO1000:NEXT
1630 PRINT@AA,"                    ";
1640 GOTO1150
1700 AQ=AA-256
1705 IF A1<=0 A1=0 ELSE IF A2<=0 A2=0
1710 PRINT@AQ,;
1720 PRINT"YOUR LASER POWER LEFT    =";
1730 PRINT A1;
1740 AQ=AQ+64
1750 PRINT@AQ,;
1760 PRINT"YOUR HITS TO COMP. CRAFT  =";
1770 PRINT A3;
1780 AQ=AQ+64
1790 PRINT@AQ,;
1800 PRINT"COMPUTER LASER POWER LEFT =";
1810 PRINT A2;
1820 AQ=AQ+64
1830 PRINT@AQ,;
1840 PRINT"COMP. HITS TO YOUR CANNON =";
1850 PRINT A4;
1860 GOTO1070
1900 REM LASER POWER EXHAUSTED
1910 PRINT@0,;
1920 IF A4>A3 THEN 2020
1930 IF A4=A3 THEN 2070
1960 PRINT"YOU HAVE DESTROYED A TOTAL"
1970 PRINT"OF";A3;"COMPUTER CRAFTS..."
1980 PRINT"CONGRATULATIONS...YOU'VE WON"
1990 PRINT"THE BATTLE....."
2000 GOTO2120
2020 PRINT"THE COMPUTER HAS HIT YOUR CANNON"
2030 PRINT"MORE THAN YOU ANTICIPATED..."
2040 PRINT"A TOTAL OF";A4;"TIMES..."
2045 PRINT"SORRY, YOU LOSE."
2050 GOTO2120
2070 PRINT"NO ONE HAS WON THE BATTLE. THE"
2080 PRINT"NUMBER OF TIMES YOU HIT THE"
2090 PRINT"COMPUTER'S CRAFT IS EQUAL TO"
2100 PRINT"THE NUMBER OF TIMES YOUR CANNON"
2110 PRINT"WAS HIT..."
2120 END
```

Appendix A

Programs That Convert to Other Systems

In order to keep confusion to a minimum, only two other computer systems will be dealt with here. They are the PET# and the APPLE II™. Furthermore, any program you do not see in this appendix will run only on the Radio Shack TRS-80 Model I, Level II computer system and the Radio Shack® Model III, Level III computer system, because of the graphics involved (SET / RESET) and the PEEK and POKE statements. All programs that can be converted are explained in the same order as they appeared in the main part of the book. All RND statements are given for Applesoft. PET owners will have to refer to their manuals.

Equivalent Statements (Examples)

The following commands perform equivalent functions:

Computer Systems (brands).....

TRS-80®	PET®	APPLE II®
A$=INKEY$	GET A$	GET A$
CLS	PRINT"■"	HOME
I=RND(5)	I=INT(RND((0)*5))	I=INT(5*RND(1))

The following statements are the same for all three systems.

A$="COMPUTER"

```
PRINT MID$(A$,1,1) = C
PRINT LEFT$(A$,1) = C
PRINT RIGHT$(A$,1) = R
PRINT LEN(A$) = 8
```

Notice that the length of print statements will have to be shortened if you are using the PET computer system, because the video display is smaller on the PET than on the other two systems.

Reverse Order of Operation

To make this program work on the other systems, delete the following lines:

450,465,725,740,770

These lines are for the second difficulty level, which prints and blanks the letters at a certain location on the video. If your system has a function that will let you print at (PRINT @) different locations on your video, you can leave these lines and simply change line 465 (variable W) to match your system's location areas. Be sure to delete line 725.

The RND (random) function will have to be changed also. Change line 560 to:

```
 560 I=INT(26*RND(1))
```

Also change C$=INKEY$ to GET C$ in line 810.

Line 830 tests for key closures for the time loop. This procedure is the same for all systems.

Color Match

Only two line changes are required to run this game program on the other systems. These are

```
 520 I=RND(16)
```
Change to:
```
 520 I=INT(16*RND(1))
1330 I=RND(4)
```
Change to:
```
1330 I=INT(4*RND(1))
```

Salt and Pepper

To run this program on the other systems you will have to know the peek addresses for keyboard memory locations. What this function does is

check your keyboard addresses. When the condition is met (line 530), the program will branch to another line just as it would if the statement had been A$=INKEY$ or GET A$. If you do know the PEEK addresses, change the address in line 520. Then change the following lines:

```
 380 A=RND(10)
```
Change to:
```
 380 A=INT(10*RND(1))
```

Change lines 390 through 420 in the same way.

If your system is not equipped to print at a certain video location, change line 580 to:

```
 580 PRINT:PRINT" :::: TIME ::::"
```
Change line 710 to:
```
 710 PRINT:PRINT
```

Finally change line 510 to:
```
PRINT TAB(55);T;"SECONDS LEFT.";
```

Words Together

As explained in the instructions concerning Salt and Pepper, you will have to know the PEEK addresses for the keyboard memory locations. Or you can do the following:

Change line 585 to:
```
 585 GET Q$:IF Q$=" " THEN 680
```
Also change the following lines:
```
 615 IF L1<=0 and Q$="" THEN 585
 660 IF Q$=" " THEN 680
```

These changes will allow you to use the get function, instead of peeking into the keyboard memory locations. Press the space bar (at lines 585 and 660), instead of pressing the enter or return key.
Also make the following changes:

```
520 I=INT(45*RND(1))
590 L=INT(R*RND(1)) ((4*RND(1))
```

The PRINT @ statements will have to be changed to TAB locations (providing your system does not have PRINT @) .

Change the variable E in line 20 to E=25
Change line 610 to:
```
 610 L1=INT(R*RND(1)-L)
```

Change line 1180 to:
1180 I=INT(2*RND(1))

The LEFT$, RIGHT$ and MID$ functions are the same for all the systems.

Words of Importance

Only two changes are required in this program, they are:

```
450 F=INT(Q*RND(1))
460 T=INT(10*RND(1))
```

These two lines allow the random selection of the first player (provided that more than one person is playing).

Putting Names Together

This game program will run as it is on the two other computer systems. Mentioned without having to make any changes. The two functions, LEN and MID$, are the same for all the systems.

To the Dogs

Only minor changes are required to run this game program on the other computers. These are:

Line 860 DELETE @ 960,;
Line 1045 DELETE @ 448,;
DELETE lines 1050, 1055 and 1060
DELETE GOSUB 1050 from line 1020
DELETE @ 704,; from line 1610

These statements that must be deleted place the printed messages neatly on the screen. Using PRINT instead of PRINT @ in these statements will just produce a carriage return and will have no drastic effects on the display.

Keep Out of the Gutter

To run this program on other systems, you need only make the following changes:

Line 600
Change A$=INKEY$ to GET A$
Line 930
Change I=RND(9) to I=INT(9*RND(1))

(Motion) Sense of Direction

Make the following changes for use on the other systems:
Change line 550 to:

```
550 H=INT(50*RND(1))
```

Change line 4020 to:

```
Q=INT(17*RND(1))
```

All other program lines should remain the same.

Appendix B

Program Changes to Consider

All changes are only meant as suggestions. You might want to try others of your own. To locate the part of a program you want to change, add to, or delete, follow the remark statements within the program listing.

Reverse Order of Operation

By making several modifications you can have more than three people playing at a time; for instance, you could have six players. Change and/or add the following lines:

```
390 PRINT"HOW MANY PLAYERS (UP TO 6)";
410 IF P<=1 OR P>=7 THEN 390
492 IF P=3 THEN 500
493 INPUT"PLAYER # 4'S FIRST NAME";Q3$
494 IF P=4 THEN 500
495 INPUT"PLAYER # 5'S FIRST NAME";Q4$
496 IF P=5 THEN 500
498 INPUT"PLAYER # 6'S FIRST NAME";Q5$
```

Change the GOTO statements in lines 680 and 690 to:
GOTO703

```
700 IF RR=3 RR=4:Z$=Q3$:GOTO703
```

```
 701 IF RR=4 RR=5:Z$=Q4$:GOTO703
 702 IF RR=5 RR=6:Z$=Q5$:GOTO704
 703 IF RR=6 RR=1:Z$=Q$:GOTO710
 704 IF RR>P THEN RR=1:Z$=Q$
1142 IF K=4 THEN Z$=Q3$:RR=4
1143 IF K=5 THEN Z$=Q4$:RR=5
1145 IF K=6 THEN Z$=Q5$:RR=6
1232 IF RR=4 THEN 1262
1233 IF RR=5 THEN 1263
1235 IF RR=6 THEN 1265
Add to line 1260 :GOTO1270
1262 T5=T5+T1:PRINT T5:GOTO1270
1263 T6=T6+T1:PRINT T6:GOTO1270
1265 T7=T7+T1:PRINT T7
Add to line 1320:Z$="":
```

You will also have to change and add more lines to the closing of the program starting at line 1430. For instance if you change the program to run with 6 players, line 1430 would read:

```
1430 IF T2>T3 AND T2>T4 AND T2>T5 AND T2>T6 THEN 1490
```

Lines 1440 and 1450 will also have to be changed to include the players you have added. (These are arguments to determine the final winner.) Also you will have to add more of these arguments between lines 1450 and 1460. Print statements will have to be added after line 1540 to accommodate the extra players.

Score values can easily be increased or decreased by changing the variable T1 at line 930, I.E., for 50 points per letter, line 930 should read:

```
930 T1=T1+50:XC=XC+1
```

Color Match

The colors used in this program can be changed simply by changing the string contents B$(I) at lines 420,440,460 and 480. These colors were selected because they are part of the widely used basic color group.

If you feel that you should be able to move a color more (or less) than 2 spaces, change the number in line 770. As the program stands you can move a color two places higher or lower (I.E., 7 to 8 or 7 to 9 or 7 to 6 or 7 to 5). If you want to increase that number by, say, one, just change the numeral 3 to a numeral 4. The line would then read:

```
770 IF ABS(U-M)>=4 THEN 1100
```

where line 1100 is the print message for an illegal command. Of course, the

more you increase that number, the fewer attempts it will take to finish the program.

At level I, the computer will print the original every time you enter a zero. This can be modified so that after a certain number of attempts the computer will refuse to print the original. Add the following line:

```
1205 IF A>=5 THEN 1100
```

This line will send the program to the "illegal command" subroutine if the user has completed at least 5 attempts when he requests to see the computer's original.

SALT AND PEPPER

To increase or decrease the time limit, change the variable TT at line 370. As the program stands, each unit of time is approximately equal to one second. You can increase or decrease the length of a unit of time using the FOR-NEXT loop located at line 540. That line reads:

```
540 FOR I=1TO500:NEXT
```

To shorten the unit, decrease the integer 500; likewise to lengthen it, increase the integer 500.

The number of problems can be changed by changing the number in line 600. That line reads:

```
600 IF K>=26 THEN 900
```

To increase or decrease the number of problems, just increase or decrease the integer 26. If you do change this integer, you might also want to change the statements in lines 910 through 930 so that the numbers are appropriate for the number of problems.

By adding a FOR-NEXT loop, (inserting another line, 815) you can add a pause before the problem is erased, for example,

```
815 FOR I=1TO750:NEXT
```

Now, when the enter key is held down, there will be a short pause before the problem is erased.

Patterns

You can add other key closures to this program to create different drawing effects.

For example, the space bar plus
the up arrow key = 136

the down arrow key = 144;
the left arrow key = 160;
the right arrow key = 192.

With these added key closure variables you could draw things such as 'dotted' lines. To use these keys, add the following lines to the current program, run it and select # 1 LEFT / RIGHT patterns.

```
222 IF A=136 THEN 311
223 IF A=144 THEN 312
224 IF A=160 THEN 313
225 IF A=192 THEN 314
311 Y=Y-2:K=K-2:GOTO 360
312 Y=Y+2:K=K+2:GOTO 360
313 X=X-2:J=J+2:GOTO 360
314 X=X+2:J=J-2:GOTO 360
```

Using these additional lines, you can hold down the space bar and press any one of the four arrow keys to create 'dotted' lines in any of the four directions. To experiment further, add this line and then run the program.

```
101 PRINT @64,A;
```

Now each time you press a different key, you can see what its PEEK address is (that is, all except for the CLEAR key). To add even more key closures for more effects, just remember that each line you add for the variables Y, K, X, and J will send the program to line 360. Each variable can thus be tested before it is actually set or reset.

Words Together

If you find that the words are too complicated or not complicated enough, each of the words can easily be changed to meet your own needs. The data list for these words begins at line 5000 and runs through line 5140. Try to use words that can be divided equally, such as FOREHAND or SOMEWHERE. In the second half of the program, the computer might choose to have the user select the left or the right half of the word.

You can experiment with the way pieces of each word are printed by changing lines 590, 610, and 640.
At line 590 increase the number 4 to 7:

```
590 L=(RND(R)=RND(7))
```

Change line 605 to:

```
605 IF L>=4 AND L<=15 THEN 640
```

To have the jumble of letters move to the left faster, change the variable L1 in line 610

```
610 L1=(RND(R)-1):PRINT@ E+2,RIGHT$(T$,L+1);
```

The blank space at the end of lines 600 and 640 can also be widened to add even more confusion.

All About Numbers

If you want your child to learn to count higher than is possible with this program as it is, add the following lines:

```
 986 IF GJ=1 AND KL<>0 THEN 2260
1275 IF KL<>0 THEN R=4:RR=88
2115 IF GJ=1 THEN 2200
2200 REM HIGHER COUNT
2210 PRINT:INPUT"COUNT HIGHER";L$
2220 IF L$<>"YES" AND L$<>"Y" THEN 2120
2230 IF KL=0 KL= 15
2240 X=1:CLS:GOTO 425
2260 KL=KL+15
2270 IF AA<>KL THEN 1010
2280 GOTO 1000
```

When these lines have been added, the program will allow him or her to go as high as he or she wishes.

All About Numbers II

You can very easily increase the level of difficulty for the addition problems. After your child has mastered the program as it is, you could add the following lines:

```
3115 REM HIGHER LEVEL OF DIFFICULTY
3116 WR=1:GOTO 4470
```

At line 4475 increase the variable L to what you think your child can handle. If you change the variable L to 25 the highest number to be added will be 25. The highest possible total will be 50 (25 + 25). The variable X (line 4580) selects a random integer value of the variable L for each problem. Also add these lines:

```
4595 IF X<=9 PRINT TAB(T+1);X;:GOTO 4610
5355 IF WR=1 THEN 6110 ELSE 6610
6110 GOSUB 5400:WR=0
```

At line 6130, you will probably want to increase the variable L for the subtraction problems. Try increasing it to 25. Also add the following line.

```
6226 IF G(M)<=9 AND F(M)>=10 THEN PRINT
TAB(T+1);P$;G(M);:GOTO 6240
```

Then change line 6280 to:

```
6280 GOTO 6226
```

Anytime you want your child to try problems that are more difficult, enter all of the lines listed above. Just keep in mind not to increase the variable L so much that your child cannot complete the problems successfully.

Words of Importance

The most important change you can make to this game is to change the words in the data list. They are located in lines 2000 through 2160. Remark tells you what kind of words are in each set.

You can also change the point system at line 1840. A good idea would be to use the LEN function to make the number of points received depend on the length of the word. To do this, make the following changes:

```
1060 IF U$=S$(I) THEN PI=PI+LEN(S$(I))
1090 IF U$=C$(I) THEN PI=PI+LEN(C$(I))
1120 IF U$=H$(I) THEN PI=PI+LEN(H$(I))
1160 IF U$=AB$(I) THEN PI=PI+LEN(AB$(I))
```

Then delete lines 1840 and 1850.

Another effective idea would be to have each player input their age, along with their name. That way, if a player was, for example, 17 and tried to use the first difficulty level, simple words, the computer could respond with a message such as "YOU ARE TOO OLD FOR THE SIMPLE WORDS." Likewise, if a younger person, say a seven year old, wanted to use the second difficulty level, complex words, the computer could display a message like, "YOU ARE TOO YOUNG FOR THE DIFFICULT WORDS"—that is, unless the kid is all brains!!!

Putting Names Together

Again, as with the previous program, you can change the names in data list as you wish. The names are located at lines 5020, 5030, and 5040. Be sure to read the remark statements in lines 5050 through 5100. Instead of using first names, you could use the last names of famous people. There are quite a few of them that contain letters used more than once.

You could make the game really tricky by having the computer print the numeral below or the numeral above the one you would expect for a given letter. For example, the letter A is the first letter of the alphabet. When the computer displays the numbers for a name, it could print a zero for A (one below), or a two (one above). This change would make the game more confusing and more difficult.

To make the alteration, change line 2050 to

```
2050 P(L)=I-1:W$(L)=MID$(A$JL,1)
```

This line would have the computer display the numeral one less than the one you would expect. To go one numeral higher, just change the statement to P(L)=I+1. These changes will also affect the derived form of the name: you will end up with something completely different.

Finish the Letters

To make this game harder you may wish to delete two functions. First, you may delete the part where the computer gets a letter that is contained in the actual word and then prints it. Second, you may delete the "GOSUB 425" which causes the computer to print the number of letters contained in the word. The user would then have to count the underscores, so it would take him or her longer to figure out a word.

Another change you could make, if your younger children are playing, is to replace the words in the data list, lines 1030-1100 with easier words. The words in that list now are for children over the age of 11.

If you don't feel that it's fair for both you and the computer to lose one point with each pass through the alphabet you can delete line 270. Also make the appropriate changes in lines 810, 820, and 830 which cause the message for this function to be displayed.

Calendar

If you are not using the program as an ordinary calendar, you may want to have the child input the name of the month being displayed. You could also add some extra lines that ask the child to input the names of all seven days of the week. After he or she learns the months, you could insert some input statements that ask him or her to input the next month. For example, when January is printed, the computer will ask "WHAT MONTH IS AFTER JANUARY?" before it advances to the next month. This method could also be used for the days of the week. Before each advance, have the child input the names of all seven days of the week plus the name of the month that follows. A counter could be inserted so that they would have to input the days of the week for only the first three or four months.

Clockwork

There are many changes that you could make within this program. Here are a few:

You can change the scoring system. The number of points for each area (500, 200, and 50) can be made higher or lower by changing the subscripted variables A(4), A(5) and A(6) at lines 50 through 100. The time count can be increased or decreased at line 920 (variable C). As it stands, there is a limit of 1 minute (60 seconds).

PEEK statements in lines 2110 through 2130 determine whether or not a player is to receive points. You could 'fine tune' these point areas by raising or lowering the variables A1, A2, and A3 one digit.

You could modify the program so that a player who fails to make any points during his or her turn would forfeit his or her next turn, or would lose points from his or her score. This program uses some complex statements, so be sure you read all the remark statements and decide beforehand what you want to do before making any changes.

Blackout

There are a number of changes you might consider for this program. You can change W$ and B$ to two other colors by altering lines 300 and 310. Be sure to change the string contents at lines 1210 and 1230 as well. If you decide to change these colors, do only that. That is, if you change W$="WHITE" to W$="RED", alter only the contents of that string. Leave the string letters just as they are (B$, W$ and C$) or you will end up changing half of the program.

If you do not want the answers printed, try this;

Change line 470 to read:

```
470 PRINT @ A(I)-3,CHR$(143);
```

This modification will print 'blocks' instead of the answers to the right of the rows. The user will know which problem they are on when the 'block' is blanked out. This change will make the user have to think harder than ever.

To change the key closure, simply change the arguments at lines 495 and 505, where "Q$=CHR$(32)" means that the space bar must be pressed.

To the Dogs

This program can be modified in several ways also. If you don't think $50,000.00 is a large enough prize, this figure can be changed at line 400, where D=5E+04 or 50000. The items you can buy are found in the data list in lines 1200 through 1490. The price of each item is located between lines 1510 and 1590. If you change the data elements for the trips, be sure to change the statement, in which the appropriate strings are concatenated (placed together). These statements are found in lines 600 through 640. Also change the subroutine in lines 1180 through 1195. The subroutines in lines 1140 through 1150, and 1160 through 1170 are for the concatenation of appliances and furnishings.

Challenge Your Computer

For variety, you could change the characters to whatever you desire (within the limits of the computer, of course). Experiment with lines 35 and 40. For example, leave line 35 as it is, and change line 40 to

```
40 IF P<=129 THEN 35
```

Or try this: change line 35 to:

```
35 P=RND(150)
```

And leave line 40 as written as above. You could also go all the way and try this change:

```
35 P=RND(129)
40 IF P<=33 THEN 35
```

This last example will give you alphanumeric characters in sets of five each (of the same character). They will range from 34 to 129 so various symbols including the up, down, left, and right arrows will also be used.

Keep Out of the Gutter

You could modify this program by increasing the number of points awarded for each match. Change line 1140 to alter the number of points awarded to the computer. Change line 1210 to do the same for the human.

The total number of rounds played can increase or decrease. Just change the argument at line 670, variable DD.

The end of game messages in lines 840 through 870 can be quickly changed. Just be sure to refer to the right winner (you or computer) in the right lines. Lines 850 and 855 are for a tie game. Lines 865 and 870 are used when the human wins. Lines 840 and 850 are for a computer win.

Finally, if you find it is difficult to gain many points, read and study all of the remark statements between lines 400 and 495. These will explain a few things. If you still can't match the computer...try another game!!!

(Motion) Sense of Direction

If you have been frustrated by getting lost in a particular town, why not modify this program by entering the real street names just for practice. You can change the street names (data elements) in lines 5000 through 5050. If you enter more than 17 street names, be sure to change the DIM statements (line 360) and the READ DATA statements (line 380 and 390) to match the higher number.

Instead of using a randomly selected highway number, you can set the variable H for a particular number at line 550.

The remark statements in lines 4060 and 4070 were primarily intended for when all 17 street names were used. Using that many streets was not found to be feasible because using only six or seven names proved to be plenty, even for those with a half-way decent memory.

The scene of the route can be altered by changing the following print statements:

620 through 640 *
660 through 680
700 through 710 *

730 through 750
800 through 820
840 through 850 *
870 through 880
1060 through 1070 *
1090 through 1120

Be sure to add a semicolon at the end of each print statement that you see marked by an asterisk. The semicolon will cause the street name to be printed on the same line as the statement.

Lines 4010 through 4050 select a random street name and then delete it from the list. If you want to use the same street name(s) more than once, delete lines 4030 and 4050.

Line 4160 is the random selection used to determine whether or not the car will not run out of gas. If you want to complicate matters and have the vehicle run out of gas during nearly every run, change the line to read:

4160 D=RND(7)
To have it run out during every run, change it to:
4160 GOTO 4180

Cube

There is a way to arrange the letters in their proper places in the cube in only a few moves, but that solution will not be discussed here....

You might consider changing the letters that are within the cube. To make these changes, go to lines 280 and 290 where U=65, which equals the character A. Be sure to keep nine letters or part of the cube will be destroyed. Also change the contents of H$ in line 240 to match your new letters.

If you want to use a point system along with or instead of counting the number of attempts, you can put extra lines between lines 940 and 960. The print statements in lines 1040 through 1170 can easily be changed. To change the lines that branch to these messages, alter lines 1010 through 1030, where variable AT is the final number of attempts.

Horseshoes

You can quickly change the distance the horseshoe is thrown by changing the variable F in lines 810 through 820. Note that the line that is used depends on the type of throw, soft, medium, or hard, that was chosen. You can modify lines 840 through 850 which determine a number that is added to each throw. If this random number is deleted, it would become far easier to 'ring' a horseshoe.

Lines 880 through 950 reset and set all parts of the horseshoe. If you decide to change the shape of the horseshoe, be sure to alter all the lines that pertain to the shape.

Lines 1240 through 1290 move the horseshoe at an up or down angle (providing no points are gained). The user(s) and the computer each receive one point for each correct horseshoe thrown. The number of points can be increased at lines 1500 and 1505 for user 1, user 2 or the computer. The variables to change are, Q1 and Q2. Line 675 terminates the game at 10 points. Change the arguments at line 675 for shorter or longer play.

Finally, you can change the closing messages as you choose, by following all the print statements beginning at line 1790 and ending with line 1870.

Bloks

This game should be left just as it is. You could however change the final messages at lines 2360, 2380, and 2420. Lines 2500 through 2590 are the messages which are displayed when one player forfeits the game.

Mission Improbable

There are several changes you may want to make to this program. The amount of oxygen can be changed if you like. See variable XN at line 90, where XN=10000 units of oxygen. The alarm rating is governed by the variable AR in line 260. The value of AR is increased only if the value of DF is equal to one. This restriction assures us that the player has left the cubicle and made a full circle before the alarm rating is increased. You can increase or decrease the change in the alarm rating by changing the number in the statement AR=AR+.2. Also change the same number in line 1570. The distance is keyed to correct movement and return back to the cubicle, so you should not alter it.

The game is over only when each player has completed 5 runs through the capsule. You can alter this number by changing the variables R1 and R2 in lines 2440 and 2480. If you alter these, you must also change the instructions and the print statement at line 2915.

Finally, all messages can be very easily modified. There are a lot of them, so follow the program listing carefully.

Driver

One modification you could make to this game would be to add a section that would pick out the top winner after a number of races. Use a subscripted variable to do this. Also use a counter that increases after each race is finished. At the end of a predetermined number of drags, send control of the program to lines which will take the statistics from each race and determine the top winner.

You may also wish to change the speed of the cars. When you examine lines 1200 through 1305, you will note that the speed of the cars is preset using a random function. Note lines 1270 and 1290 where P1=192 and P2=192. Also note lines 1260 and 1280 where P1 and P2 both equal 128. Add 64 to 128 and you'll get 192. Hence, you can see that this program is designed

so that the top speed will be no more than 192 and no less than 128 (step 64). If you decide to increase the top speed of the cars, use steps of 64. You will also have to redetermine the values of the variables KX and KK (lines 1260 through 1290). These variables insure that an FC error (frequency call error) pertaining to the print @ statements will not occur at the finish of the race. The top speed of 192 for variables P1 and P2 were selected because a higher speed would almost render the cars invisible.

If the staging speed (1-7) is too fast or slow for you, you can quickly change this speed at line 1160, the for-next loop. To increase the speed of the staging, just replace the 100 with a lower number. Likewise to decrease it, just replace the 100 with a higher numeral.

The two dragsters are made up of CHR$(162) + CHR$(170) + CHR$(162). See X$ in line 490. If you want to modify the looks of the dragsters or make the appearance of one differ from that of the other, experiment with line 490. If you decide to make one different from the other, be sure you put it within a different string and change the appropriate lines throughout the entire program. Check lines 570 and 580 which print each of the dragsters. Change only the line that prints the 'different' dragster.

Control the Robot

Because of the complexity of the statements involved, you should leave this program as it stands. If you are brave enough to make changes, follow all remark statements carefully and to the letter!

Random War with your Computer

If you don't care for the square block used within this program, it can be modified at line 410, where X$=STRING$(4,143). 143 is the code for one small block. The 4 causes four of the small blocks to be printed.

In lines 1650 through 1740, you will find the final messages. You can change these to fit your needs. Try to keep the number of characters and spaces per line less than or equal to about 30, because the screen converts to the CHR$(23) format at the end.

You have probably noted that the speed of the block increased near the end of the game. You can alter this at line 50 where variable TX=70. After each play (the setting of one of your four blocks) the computer decreases this variable by 10 at line 605. When TX reaches zero it will stay there. If you want the block to move at full speed throughout the game, change line 50 to read:

```
50 TX=0
```

And delete TX=TX–10 from line 605.

If you prefer to slow the block down, try changing line 50 to:

```
50 TX=175
```

You can also decrease the number subtracted from TX 605.

Under Attack

The design of the computer craft is controlled by poke graphics. If you are not that familiar with poke procedures, leave the craft the way it is. The poke graphics are located in lines 420 through 450. The computer craft is moved by the variable J at line 550. The firing of computer's laser gun is controlled by the argument contained within line 595. You can experiment with different settings for this argument or add more arguments here for different firing effects.

The amount of laser power remaining for both your cannon and the computer's is controlled by the subtraction of an amount. You can modify the amount of laser power you and the computer start with by changing the value of A1 (your power) and A2 (the computer's power) in line 30.

You can move your cannon (pylon) left or right and fire it with keys other than the ones currently used by experimenting with lines 1120 through 1140.

If there are any other changes you want to make, follow all remark statements carefully, because most changes will involve poke statements.

Appendix C
Program Memory Requirements

This appendix contains the memory requirements for each of the 25 game programs contained in this book. All programs are listed in the order they appear in the book.

If you want to use a particular program but you don't have the amount of memory required, don't think that all is lost! Follow the program listing carefully, then delete all remark statements and print statements/messages that you feel are not essential to the program. You could even leave out the instructions. If you then decide to save the program on tape, you could refer to the book for instructions when you wish to use the program.

The chapter number, the title of each program, and the amount of memory that is required for that program are listed on the following pages.

Title:	Memory Required:
Chapter I	
Reverse Order of Operation	4K
Color Match	4K
Salt and Pepper	4K
Patterns	4K
Chapter II	
Words Together	8K
All About Numbers	4K
All About Numbers II	16K
Words of Importance	8K

Putting Names Together 4K
Finish the Letters 8K
Calendar 4K
Chapter III
Clockwork 8K
Blackout 8K
To the Dogs 8K
Challenge your Computer 8K
Keep Out of the Gutter 4K
(Motion) Sense of Direction 4K
Chapter IV
Cube 8K
Horseshoes 8K
Bloks 16K
Mission: Improbable 16K
Driver 8K
Chapter V
Control the Robot 16K
Random War with your Computer 8K
Under Attack 8K

Appendix D
Short Programs

This appendix is devoted to showing you just what short programs can accomplish. After you enter and try each one, you can experiment with them to see what can be added or deleted. There will be an explanation of what each program does, followed by a listing of the program. Because of the brevity of each program, no sample run is required.

Calculator

You can enter your problems and receive an instant answer with the help of this short program. You can add, subtract, multiply, and divide. (Sorry, no chain problems.) To exit, press the break key. This program is compatible with all systems.

```
10 CLS
20 PRINT:PRINT"ADD, SUBTRACT, MULTIPLY OR DIVIDE"
30 INPUT"1, 2, 3 OR 4";X
40 IF X<=0 OR X>=5 THEN 20
50 PRINT"YOUR PROBLEM";
60 INPUT A,AA
70 ON X GOTO 80,90,100,110
80 PRINT A+AA:GOTO 20
90 PRINT A-AA:GOTO 20
```

```
100 PRINT A*AA:GOTO 20
110 PRINT A/AA:GOTO 20
```

Alphabetized Letter/Word List

This program will let you input up to 10 letters or words in any order. The computer will then display the list in alphabetical order. The program is compatible with all systems.

```
 10 CLS:CLEAR 500
 20 I=1:DIM A(11)
 30 INPUT"LETTER/WORD";A$(I)
 40 IF I<=9 THEN I=I+1:GOTO 30
 50 I=1:X=0
 60 IF A$(I)<=A$(I+1) THEN 100
 70 Y$=A$(I);A$(I)=A$(I+1)
 80 A$(I+1)=Y$
 90 X=1
100 IF I<=9 THEN I=I+1:GOTO 60
110 IF X=1 THEN 50
120 FOR I=1TO11:PRINT A$(I);" ";:NEXT
130 END
```

To INPUT more than 10 letters/words change the DIM statement in line 20 appropriately, and then change the arguments at 40 and 100 to match your higher number (where I<=N). Also change the FOR-NEXT loop at line 120 appropriately.

Low/High Numbers

This program will let you enter up to 10 numbers in any order. The computer will then display the list in numerical order from low to high. This program is compatible with other systems.

```
 10 CLS
 20 I=1:DIM A(11)
 30 INPUT"THE NUMBER";A(I)
 40 IF I<=9 THEN I=I+1:GOTO 30
 50 I=1:X=0
 60 IF A(I)<=A(I+1) THEN 90
 70 Y=A(I+1):A(I+1)=A(I):A(I)=Y
 80 X=1
 90 IF I<=9 THEN I=I+1:GOTO 60
100 IF X=1 THEN 50
110 FOR I=2TO11:PRINT A(I);:NEXT
120 END
```

To INPUT more than 10 numerals, follow the instructions at the end of the previous program.

Bulletin Board

This program will let you input any message. Then the computer will clear the video, wait the length of time you have selected, and print your message using CHR$(23) (large print). Press the break key after the message is printed to exit. You can use this program on other systems by deleting the CHR$(23) function in line 60.

```
 10 CLS
 20 CLEAR 1000
 30 INPUT((YOUR MESSAGE";A$
 40 PRINT"DELAY OF (WHERE 500 EQUALS ONE SECOND)";
 50 INPUT D
 60 CLS:PRINT CHR$(23)
 70 FOR I=1TOD:NEXT:A=0
 80 FOR I=1TO LEN(A$):PRINT MID$(A$,I,1);
 90 A=A+1:IF A>=27 AND MID$(A$,I,1)=" "THEN PRINT:A=0
100 NEXT
110 END
```

Print @ Locations

Memorize your PRINT@ locations with the help of a game. The computer will randomly select a PRINT@ location (between 0 and 895) and set a block there. You must input the number of that location. This program recycles and is not suitable for all systems.

```
 10 CLS
 20 RANDOM
 30 X=RND(895)
 40 PRINT@ X,CHR$(143)
 50 PRINT@ 896,"LOCATION";
 60 INPUT Y
 70 IF Y<>X THEN PRINT"SORRY,IT's ";X;GOTO 90
 80 PRINT"CORRECT, IT IS ";X
 90 FOR I=1TO1000:NEXT
100 CLS:GOTO 30
```

ASCII of Letters/Words

This program will let you input any letter or word. It will then display letter or word in ASCII, I.E., A=65. This program is suitable for all systems.

```
10 CLS:CLEAR 500
20 INPUT"THE LETTER OR WORD";A$
30 I=1
40 PRINT ASC(MID$(A$,I,1));" ";
50 IF I<>LEN (A$) THEN I=I+1:GOTO 40
60 PRINT
70 PRINT"FINISHED"
80 END
```

Firing Order

This program depicts an eight cyclinder car engine with a faulty firing order. To start the engine you must input the correct firing order (1-8). The program is compatible with other systems.

```
10 CLS:I=1
20 INPUT"THE FIRING ORDER";X(I):IF I<=7 THEN I=I+1:GOTO
20
30 FOR I=1TO8:F(I)=I:NEXT:I=1
40 A=RND(8):IF A=0 THEN 40
50 IF I>=9 THEN 100
60 IF F(A)=0 THEN 40
70 J(I)=A
80 F(A)=0
90 I=I+1:GOTO 40
100 FOR I=1TO8:IF X(I)<>J(I) THEN P=1:NEXT ELSE NEXT
110 IF P=1 THEN PRINT"ENGINE IS NOT RUNNING !!":GOTO 130
120 PRINT"THE ENGINE IS RUNNING !!!"
130 END
```

Next in Line

This program will display a list of five numbers that will range from 0 to 9. The computer will display these five randomly selected numbers for about one second and then clear the screen. You must input a number that is one higher than the numeral you saw for each of the five numbers, I.E., if 1 6 8 7 2 are printed, you must input 2 7 9 8 3.

```
10 CLS:RANDOM
20 FOR I=0TO9:N(I)=I:NEXT:I=0
30 N=RND(9)
40 IF I>=5 THEN 80
50 IF N(N)=0 THEN 30
60 A(I)=N+1:PRINT A(I)-1:N(N)=0
70 I=I+1:GOTO 30
80 FOR T=1TO1000:NEXT:CLS
```

```
 90 PRINT"INPUT FIVE NUMBERS EACH MUST BE".
100 PRINT "ONE HIGHER THAN THE NUMERAL YOU SAW."
110 I=0
120 INPUT X
130 IF X<>A(I) THEN P=P+1
140 IF I<=4 THEN I=I+:GOTO 120
150 IF P=0 THEN 170
160 PRINT"YOU HAVE MISSED";P;"NUMBERS.....":GOTO 180
170 PRINT"CONGRATULATIONS, ALL CORRECT !!!"
180 END
```

Printer Signs

Using any combination of keys on your keyboard, you can create a sign for your printer to print. To make blank spaces, press the space bar; the cursor will move one position to the right. (This cursor will not be printed on the hard copy.) You cannot backspace with this program.

Whatever you create on your video will be printed on paper with the help of a line printer (up to 900 characters). Anytime you are ready to stop designing, press the up arrow key. The computer will then state "ENTER A 'Y' FOR PRINTER—'N' TO RUN AGAIN?" When the display is printed on paper, it will be the same width as it is on your screen, 64 characters wide. The program is not suitable for all computer systems.

```
 10 CLS
 20 CLEAR 1200:X=0:DIM L$(900)
 30 A$=INKEY$:PRINT@ X,CHR$(95);:IF A$="" THEN 30
 40 IF A$=CHR$(91) THEN 90
 50 IF X>=900 THEN 90
 60 IF A$="" THEN 80
 70 PRINT@ X,A$;
 80 L$(X)=L$(X)+A$:X=X+1:GOTO 30
 90 INPUT"ENTER A 'Y' FOR PRINTER—'N' TO RUN AGAIN";Q$
100 IF Q$="N" THEN CLS:RUN
110 INPUT"READY LINE PRINTER—PRESS ENTER";Q$
120 J=0:H=0
130 LPRINT L$(H);:J=J+1
140 IF J>=64 J=0:LPRINT
150 IF H<=X THEN H=H+1:GOTO 130
160 END
```

Appendix E
The ASCII Character Codes

The ASCII character codes are universal, the same for all computer systems. When you run the program below, the code will be displayed on the left. To the right of the code is the character it represents. If your particular system is not equipped to output the lower case letters, having your computer display the characters for the code addresses 97-127 will result in a display of only upper case letters or blank spaces.

```
10 REM CLEAR THE VIDEO SCREEN
20 CLS
30 REM OUTPUT CHARACTER CODES 32 THROUGH 127
40 FOR I=32 TO 127
50 PRINT I;" ";CHR$(I)
60 NEXT
70 END
```

ASCII Character Codes 32-127

32	space	57	9	82	R	107	k
33	!	58	:	83	S	108	l
34	"	59	;	84	T	109	m
35	#	60	<	85	U	110	n
36	$	61	=	86	V	111	o
37	%	62	>	87	W	112	p

38	&	63	?	88	X	113	q
39	'	64	@	89	Y	114	r
40	(	65	A	90	Z	115	s
41	)	66	B	91	[	116	t
42	*	67	C	92	\	117	u
43	+	68	D	93	]	118	v
44	,	69	E	94	∧	119	w
45	–	70	F	95	—	120	x
46	.	71	G	96	'	121	y
47	/	72	H	97	a	122	z
48	0	73	I	98	b	123	{
49	1	74	J	99	c	124	|
50	2	75	K	100	d	125	}
51	3	76	L	101	e	126	~
52	4	77	M	102	f	127	⁞⁞
53	5	78	N	103	g		
54	6	79	O	104	h		
55	7	80	P	105	i		
56	8	81	Q	106	j		

You will note that there are five characters you might not have seen printed on your video. These are characters 123-127. If your system is equipped with a lower case kit, these five characters can only be POKEd to your video using video POKE memory addresses. (They can also be printed on paper with an attached line printer.) If your system IS equipped with the lower case kit, load it; then enter and run the following short program.

```
10 CLS
20 FOR I=123 TO 127
30 PRINT I;" ";CHR$(I)
40 NEXT
```

Blank spaces or carriage returns were printed on your video.

Now insert or change the following lines; then run the program again.

```
15 X=15425
35 X=X+5
```

And change line 30 to:

```
30 POKE X,I
```

What you have now are some 'new' characters to play around with. But remember, to use them, you must have a lower case kit. These special characters can only be POKEd into the video display memory, locations 15360 to 16383. DO NOT POKE BELOW OR ABOVE THESE ADDRESSES.....ANYWHERE IN BETWEEN IS FINE.....

Appendix F
Basic Commands

Within this appendix you will find a general list of BASIC statements, including examples for each. You might not recognize some of the statements or examples, depending on the kind of computer system you own, but every effort was made to include some statements from each of a number of different brands.

Input/Output Commands

The following statements control the entering, retrieving, and outputting of data.

INPUT

When an input statement is encountered the computer will stop execution of a program until you enter the specified values. The response to an input statement might be a numeric variable or a string or both. Example:

```
10 INPUT"YOUR NAME";A$
20 INPUT"PLAYERS' NAMES";A$,B$
30 INPUT"NUMBER LIST";A,B,C
```

Each input statement must include a semicolon between the print statement and the variable or string that is to be entered. Each string or variable must be separated by commas as shown in lines 20 and 30 above. In

these two lines the computer will wait for more data to be entered from the keyboard.

INKEY$

When an inkey$ statement is encountered, the computer will wait for a specific key to be pressed. If a null is specified the program will not branch to other lines until the space bar is pressed. Examples:

```
10 A$=INKEY$
20 IF A$=" "THEN 1000
30 GOTO 10
```

The program will remain at line 10 (null string) until the condition is met at line 20 (space bar); then the program will branch to line 1000.

GET

The get statement is much the same as the inkey$ statement. Line 10 in the example above would be changed to GET A$. Both inkey$ and get statements can be used for alphanumeric specifications.

DATA

The data statement will let you store a data list within your program. The list can be accessed by read statements. Each data element must be separated by commas, and value in the read statement must not exceed the number of data items in a list. (See READ below.) Examples:

```
100 DATA 1,2,5,.99,1.22
200 DATA WANT,WILL,GONE,CARRY ON
```

Line 100 above must be read by a numeric expression. For line 200, the read statement must be a string expression.

READ

The read statement instructs the computer to read a specified data list. All data items within a list are READ from first to last. The example below will read the two data lines above (lines 100 and 200).

```
20 FOR I=1TO5:READ N(I):NEXT
30 FOR I=1TO4:READ W$(I):NEXT
```

RESTORE

This statement will let you reuse a data list already read by the computer. The next read statement will begin with the first item within the data list. Example:

```
100 READ A
110 RESTORE
120 READ B
130 PRINT A,B
140 DATA 100,200
```

```
RUN
100         100
```
In the example above, the RESTORE at line 110 caused the computer to start over again with the first item in the data list. Thus the "100" was read twice.

PRINT

The print statement will display a single item or a list of items on the video screen. These items can include numeric constants, string constants or a combination of both. The PRINT items may be separated by commas or semicolons. If commas are used the computer will print each successive item at the next print zone. If semicolons are used there will be no space between successive items. Examples:

```
1000 PRINT"THIS IS THE WORD"
1010 PRINT A$
1020 PRINT"THIS IS NOT CORRECT";
1030 PRINT X$
1040 PRINT"THE FOLLOWING WORD";W$;"USED"
1050 PRINT"THE NUMERAL AMOUNT IS";A
1060 PRINT"THE ONES CHOSEN ARE";B,C
```

No blanks are inserted when you use strings. Blanks can be inserted within quotes as in lines 1020 and 1040 above. Blanks are automatically inserted before positive numbers, and all numbers are printed with trailing blanks.

PRINT @

The print @ statement instructs the computer to print a message, numeric constant, or string constant at a specified location on the video screen. Example:

```
100 PRINT@100,"CONTROL=";C
```

would print the word CONTROL at location 100 on the video. The value of CONTROL would be located at location 110 (10 spaces from the C in control).

PRINT TAB

The print tab statement instructs the computer to print at a specified tab location, usually between 0 and 63. If the number is greater than 63, the item(s) will be printed on the succeeding line. TAB may be used many times in a print list. Example:

```
10 PRINT TAB(10)"CALLING" TAB(40)"OUT" TAB(50)"TABS"
```

Some systems require that semicolons be placed after the tab location, I.E.,

```
PRINT TAB(10);"CALLING"
```

Numerical expressions can also be used for tab locations. This makes TAB very useful for graphs. Example:

```
100 T=15
110 PRINT TAB(T);"IS THE CORRECT TAB."
120 PRINT TAB(T+25)"IS VALID ALSO."
```

PRINT USING

This statement allows you to specify a format for printing numeric or string values. Example:

```
 10 D$="$$####.##"
 20 T=1000
 30 PRINT USING D$;T
RUN
$1000.00
```

The # sign (line 10, D$) specifies the position of each digit in the numeric value. The two dollar signs act as floating dollar signs. One dollar sign will occupy the space right before the amount. As with line 30 the string contents (D$) and the value of 'T' MUST be separated by a semicolon.

PRINT #−1

This print statement sends any given values to cassette tape. The player must be in the proper record position before these items will be transferred. Example:

```
100 FOR I=1TO5:PRINT#-1,A(I):NEXT:A$="FINISHED"
110 PRINT#-1,A$
```

Line 100 will store the values of the variables (subscript), A(I), onto cassette tape. Line 110 stores the contents of A$, FINISHED. The # (pound sign) specifies that the following value indicates an output device (in this case cassette player—either number one or number two). With some systems the data can be sent to more than one cassette player at a time.

INPUT #−1

This statement inputs the specified number of values from the cassette and assigns them to specific variables. Example:

```
200 FOR I=1TO5:INPUT#-1,A(I):NEXT
210 INPUT#-1,A$
```

The input list must match the print list that was created earlier when the values were put on tape. I.E., whatever you print to a cassette tape must be matched exactly by the input statement that is going to use the data or an OUT OF DATA error will occur.

Flow of Control Commands

The following commands direct the execution of the program.

GOTO

The goto statement instructs the computer to branch to a specified line

number. If there is no such line the computer will stop and display an error message.

IF...THEN..., IF...GOTO..., IF...THEN...ELSE...GOTO

When the computer encounters any of these statements, it will test the following expression. If the condition is met, control will branch to the line specified after the "THEN" or the "GOTO". If the condition is not met, the "ELSE" in the third statement specifies an alternative action. When there is no "ELSE," the program will continue with the next line in the program. If there are no other lines an error will occur.

FOR...TO...(STEP)...NEXT

This statement opens a repetitive loop so that a sequence of program statements may be executed over and over. After each time through the loop, the counter is compared to the final value within the FOR statement. If the counter is greater than the final value, the program will not repeat the loop again. The STEP is optional. If no STEP is specified a STEP 1 will be assumed (that is, the value will be increased by one each time the program goes through the loop).

GOSUB

The GOSUB statement will cause the computer to branch to the specified line. This line should be the first line in a subroutine. When a RETURN is encountered, the program will branch back to the line immediately following the most recently used GOSUB.

RETURN

There are no parameters or options in this statement. It causes a branch to the statement that immediately follows the most recently used GOSUB. If a program encounters more RETURNs than GOSUBs, a RETURN WITHOUT GOSUB error will occur.

ON...GOTO, ON...GOSUB

Both of these statements work in much the same way as GOTO and GOSUB do except that more than one line number can be specified at a given time. The line that is used depends on the current value of the variable. Examples:

```
200 ON X GOTO 300,310,320
400 ON J GOSUB 1000,1010,1020
```

Each GOSUB must be met with an appropriate RETURN.

ON ERROR GOTO

This statement will send control to a specified line in case an error occurs. The ON ERROR GOTO statement must be encountered before the

error occurs or it will have no effect. This error trapping mode must be terminated by a RESUME statement.

RESUME

This statement terminates an error handling routine by specifying where the program is to branch to resume. RESUME 0 will cause the computer to branch to the line in which the error occurred. RESUME followed by a line number will cause the program to branch to that specified line. RESUME NEXT causes the computer to branch to the line following the line in which the ERROR occurred.

REM

This statement instructs the computer to ignore the contents of the rest of the line. REMark statements can be placed anywhere within a program. These REM statements make a long program much easier to figure out. If a line contains multiple statements, the REM statement must be last.

Arrays and Strings

The following commands enable you to work with strings and arrays.

DIM

When a DIMension statement is executed, it sets aside space for the variable specified. Examples:

```
10 DIM A(10)
20 DIM A$(20)
30 DIM W(5,5)
```

If the program tries to execute the same DIM statement more than once, an error will occur. Line 10 above sets aside 11 (0-10) elements for variable A, while line 20 sets aside 21 elements for A$. Line 30 sets aside 5*5 (25 elements) for variable W.

LEN

This function returns the number of characters in a given string. Example:

```
10 A$="STRINGS"
20 PRINT LEN(A$)
RUN
 7
```

LEFT$

This function returns the first n characters of a string. Example:

```
30 PRINT LEFT$(A$,2)
```

Using the example above, "STRINGS," this statement would return ST.

RIGHT$

This function returns the last n characters of a string. Example:

```
30 PRINT RIGHT$(A$,1)
```

Using "STRINGS" again, this statement would return S.

MID$

This function returns a substring of the string with a length of n and the starting position J. Example:

```
30 J=2
40 PRINT MID$(A$,J,3)
```

Using "STRINGS" again, this statement would return TRI.

SUBSTRING$

This function works the same as MID$ does.

STR$

This function converts a numeric expression or constant into a string. The numeric expression or constant must be enclosed in parentheses. Example:

```
10 A=100.50
20 PRINT STR$(A)
RUN
100.50
```

STRING$

This function returns a string composed of n of the specified character symbols. Example:

STRING$(10,"$") returns $$$$$$$$$$

VAL

This function performs the reverse of the STR$ function; it returns the number represented by the characters, an alphanumeric string. Example:

```
10 A$=INKEY$
20 PRINT VAL(A$)
30 GOTO 10
```

By pressing different numbers, you would receive the VAL of A$.

CLS

This command clears everything off the video screen.

HOME

This command works the same way as CLS does.

CLEAR

This command sets all variables, strings and arrays to zero and resets pointers and stacks.

CLEAR n

This command opens more memory space for string input. Most systems automatically set aside 50 bytes for string input. With this function you can open as much memory space as you feel you will need. Example:

```
10 CLEAR 1000
```

would CLEAR 1050 bytes for string storage/input. CLEAR and CLEAR n are not the same.

FRE

This command returns the amount of memory (in bytes) available to the user. Using the CLEAR 1000 from above as an example:

```
10 PRINT FRE(A$)
```

would return 1050, providing nothing has been entered.

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